

TM 5-3820-210-35/1

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

FIELD AND DEPOT MAINTENANCE MANUAL

**WASHING AND SCREENING UNIT
AGGREGATE: ELECTRIC DRIVEN
WHEEL MOUNTED WITH DOLLY
WITH 4 DUAL TIRES 75 TON PER
HOUR CAPACITY**

**BARBER-GREENE MODEL 48 SSC-G
FSN 3820-841-5121**

This copy is a reprint which includes current
pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY

JUNE 1962

SAFETY PRECAUTIONS

Before Operation

Always report or correct any conditions that may result in injury to personnel if operation is to be continued.

Before starting or operating any of the washing and screen-unit components, see that no loose bars, tools, or parts are lying in or on any part of the equipment, as they could cause serious damage to equipment or bodily injury to personnel.

Before attempting to operate the equipment, make certain the washing and screening unit and the sources of power are properly grounded. Death by electrocution could result from improperly grounded equipment.

Keep catwalks and decks free of grease, oil, ice, and mud to prevent slipping and falling.

Do not operate the washing and screening unit with guards removed.

Before starting, make sure shipping brackets have been removed from vibrating screen.

Before starting, make sure hold-down turnbuckles have been removed from scrubber drum.

Before starting classifier, make sure lower bearing water pressure has been turned on since this bearing depends on water for lubrication.

Before disconnecting pintle of towing unit from dolly tongue, make certain dolly tongue is in a *horizontal or below horizontal position and leveling jack is lowered*, or injury to personnel could result if dolly tongue accidentally raises to a vertical position.

Make certain that all personnel are clear of the washing and screening unit before starting any of the components. Serious injury or death could result.

During Operation

Always report or correct any conditions that may result in injury to personnel if operation is to be continued.

Do not continue operation of the equipment unless the washing and screening unit and the source of power are properly grounded. Death by electrocution could result from improperly grounded equipment.

Keep catwalks and decks free of grease, oil, ice, and mud to prevent slipping and falling. Use handrails to avoid falling from the equipment or into machinery.

Keep clear of moving machinery at all times to prevent bodily injury.

Stop all operation when cleaning, adjusting, or lubricating the components of the washing and screening unit.

After Operation

Always report or correct any conditions that may result in injury to personnel if operation is to be continued.

Stop all operation when cleaning, adjusting, or lubricating the components of the washing and screening unit.

Keep catwalks and decks free of grease, oil, ice, and mud to prevent slipping and falling. Use handrails.

CHANGE

No. 1

HEADQUARTERS

DEPARTMENT OF THE ARMY

Washington, D. C., 12 December 1968

DS, GS and Depot Maintenance Manual**WASHING AND SCREENING UNIT AGGREGATE: ELECTRIC DRIVEN; WHEEL MOUNTED, WITH DOLLY WITH 4 DUAL TIRES; 75 TON PER HOUR CAPACITY, BARBER-GREENE MODEL 48-SSC-G, SERIAL NUMBERS 48X101 THROUGH 48X120, FSN 3820-841-5121**

TM 5-3820-210-35/1, 6 June 1962, is changed as follows:

Cover page and contents are changed as shown above.

Page 3. Paragraphs 1d and 1e are rescinded.

Paragraph 2 is superseded as follows:

2. Forms and Records

a. DA Forms and records used for equipment maintenance will be only those prescribed in TM 38-750.

b. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

Page 36. Paragraphs 43-1 and 43.2 are added after paragraph 43.

43.1. Wiring Harness (Serial Numbers 48X101 thru 48X118)

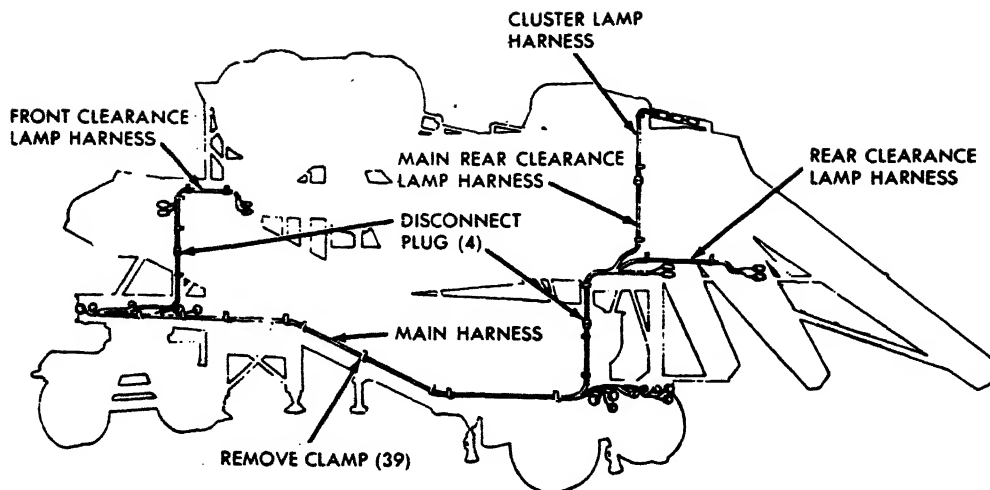
a. *Removal.* Remove wiring harness as shown in figure 27.1.

b. *Cleaning and Inspection.*

(1) Clean wiring harness with an approved cleaning solvent and dry thoroughly.

(2) Inspect wiring harness for abrasions, cuts, breaks, or other damage. Replace if necessary. Inspect terminal assemblies to see that they are firmly attached to cables and that they are not bent or otherwise deformed. Inspect shells and sleeves to see that they are not cut or otherwise damaged. Replace any damaged parts.

c. *Installation.* Install wiring harness as shown in figure 27.1. Figure 27.1 is added after figure 27.



NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AT EACH LIGHT ASSEMBLY AND AT FRONT AND REAR TRAILER RECEPTACLES. DISCONNECT CLUSTER LAMP HARNESS, REAR CLEARANCE LAMP HARNESS, MAIN REAR CLEARANCE LAMP HARNESS AND MAIN HARNESS AT PLUG ASSEMBLIES. REMOVE CABLE CLAMPS AND REMOVE HARNESS.

ME 3820-210-35/1/27.1 C1

Figure 27.1. Wiring harness, removal and installation (serial numbers 48X101 thru 48X118).

43.2. Wiring Harness (Serial Numbers 48X119 and 48X120)

a. *Removal.* Refer to figure 27.2 and remove the wiring harness.

b. *Cleaning and Inspection.*

(1) Wipe wiring harness with a clean cloth dampened slightly in an approved cleaning solvent and dry thoroughly.

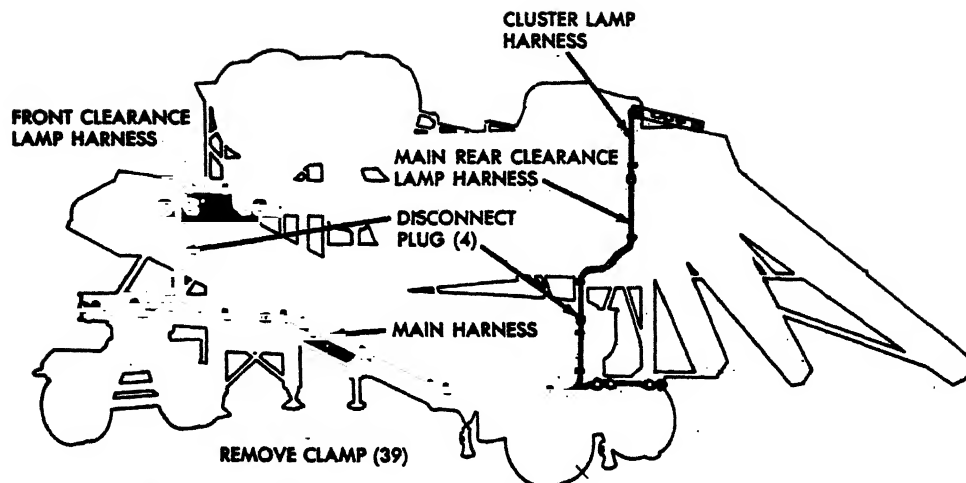
(2) Inspect for breaks, cracks, or worn insulation. Inspect wires and terminals for corrosion.

Inspect for loose terminals or terminal connections.
Inspect for loose or missing mounting clamps.

(3) Repair a damaged or defective wire making sure there are no exposed areas. Replace damaged or defective terminal lugs with same type that is removed. Tighten or replace loose or missing mounting hardware or clamps.

c. *Installation.* Refer to figure 27.2 and install the wiring harness.

Figure 27.2 is added after figure 27.1.



NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AT EACH LIGHT ASSEMBLY AND AT FRONT AND REAR TRAILER RECEPTACLES. DISCONNECT CLUSTER LAMP HARNESS, REAR CLEARANCE LAMP HARNESS, MAIN REAR CLEARANCE LAMP HARNESS AND MAIN HARNESS AT PLUG ASSEMBLIES. REMOVE CABLE CLAMPS AND REMOVE HARNESS.

ME 3820-210-35/1/27.2 C1

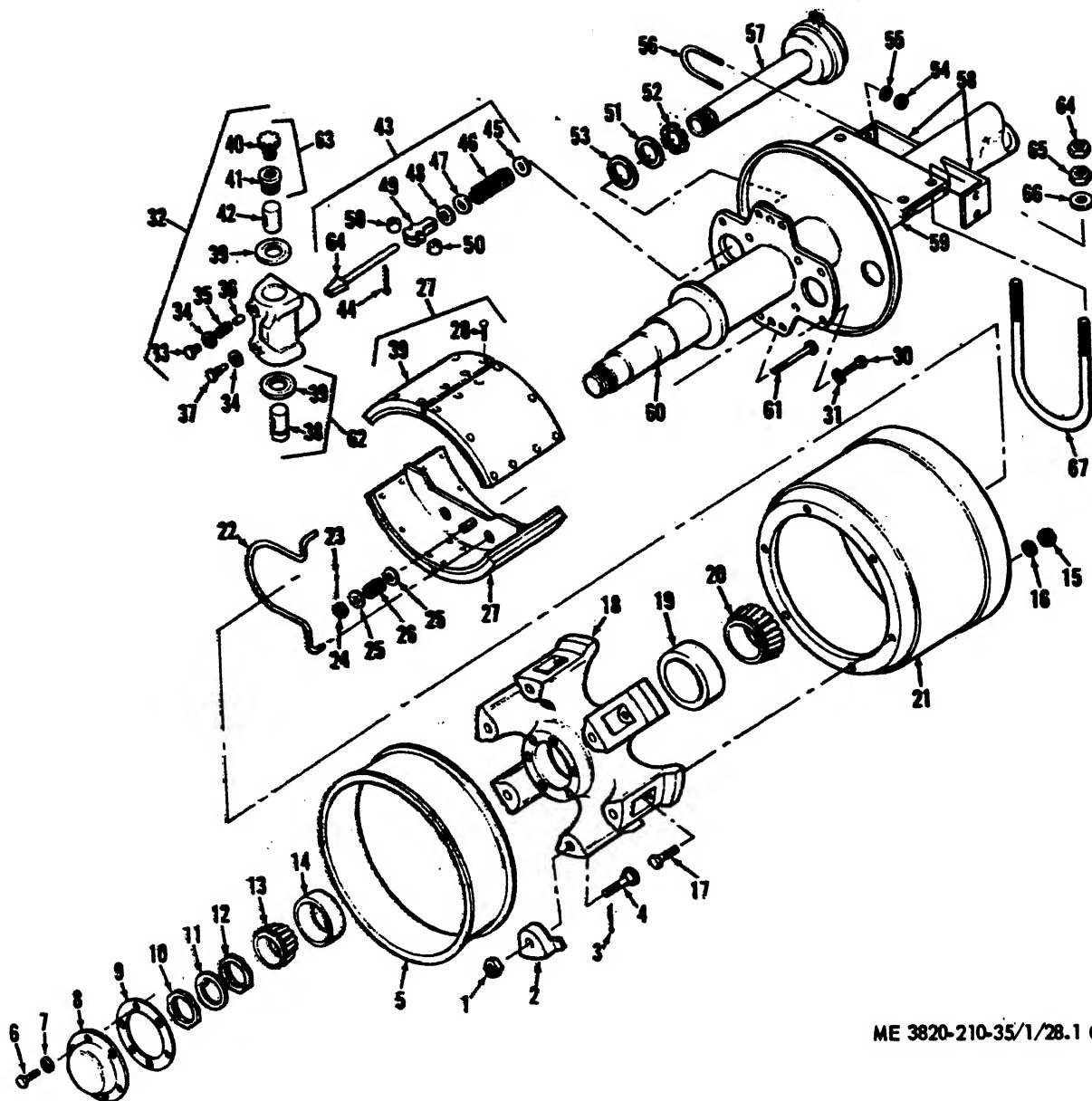
Figure 27.2. Wiring harness, removal and installation (serial numbers 48X119 thru 48X120).

Page 37. Paragraph 49b, line 3, after 28 add "and figure 28.1."

Figure 28.1 is added after figure 28.

- 1 Nut, rim bolt (12)
- 2 Clamp, rim (12)
- 3 Pin, cotter (12)
- 4 Bolt, rim clamp (12)
- 5 Spacer
- 6 Screw, hub cap (6)
- 7 Lockwasher (6)
- 8 Cap, hub (2)
- 9 Hub cap gasket (2)
- 10 Nut, outer (2)
- 11 Nut, lock (2)
- 12 Nut, inner (2)
- 13 Cone and rollers
- 14 Cup, outer (2)
- 15 Nut, drum bolt (12)
- 16 Lockwasher (12)
- 17 Bolt, brake drum (12)
- 18 Wheel (2)
- 19 Cup, inner (2)
- 20 Cone and rollers (2)
- 21 Drum, brake (2)
- 22 Spring, shoe return (4)
- 23 Pin, cotter (4)
- 24 Nut, hex (4)
- 25 Washer, guide (4)
- 26 Spring (4)
- 27 Brake shoe & lining (4)
- 28 Rivet (80)
- 29 Shoe, brake (4)
- 30 Screw, housing (16)
- 31 Lockwasher (16)
- 32 Adjuster (4)
- 33 Screw (4)
- 34 Gasket (8)

- 35 Spring, guide (4)
- 36 Actuator, guide (4)
- 37 Plunger guide (4)
- 38 Plunger, anchor (4)
- 39 Seal (4)
- 40 Bolt (4)
- 41 Actuator (4)
- 42 Adjusting plunger (4)
- 43 Wedge assembly (4)
- 44 Pin, cotter (4)
- 45 Washer (4)
- 46 Spring (4)
- 47 Washer (4)
- 48 Seal (4)
- 49 Cage (4)
- 50 Roller (4)
- 51 Retainer (4)
- 52 Nut, spanner (4)
- 53 Identification ring (4)
- 54 Nut, hex (8)
- 55 Lockwasher (8)
- 56 U-bolt (4)
- 57 Air chamber (4)
- 58 Bracket, support (4)
- 59 Axle
- 60 Seal (2)
- 61 Bolt (4)
- 62 Anchor plunger and seal (2)
- 63 Actuator adjuster bolt and seal (2)
- 64 Nut (8)
- 65 Nut (8)
- 66 Washer (8)
- 67 U-bolt (4)



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Figure 28.1. Axle, wheel and brake assembly (serial numbers 48X119 thru 48X120).

Page 40. Paragraph 52, after "figure 30" add
"and figure 30.1."

Figure 30.1 is added after figure 30.

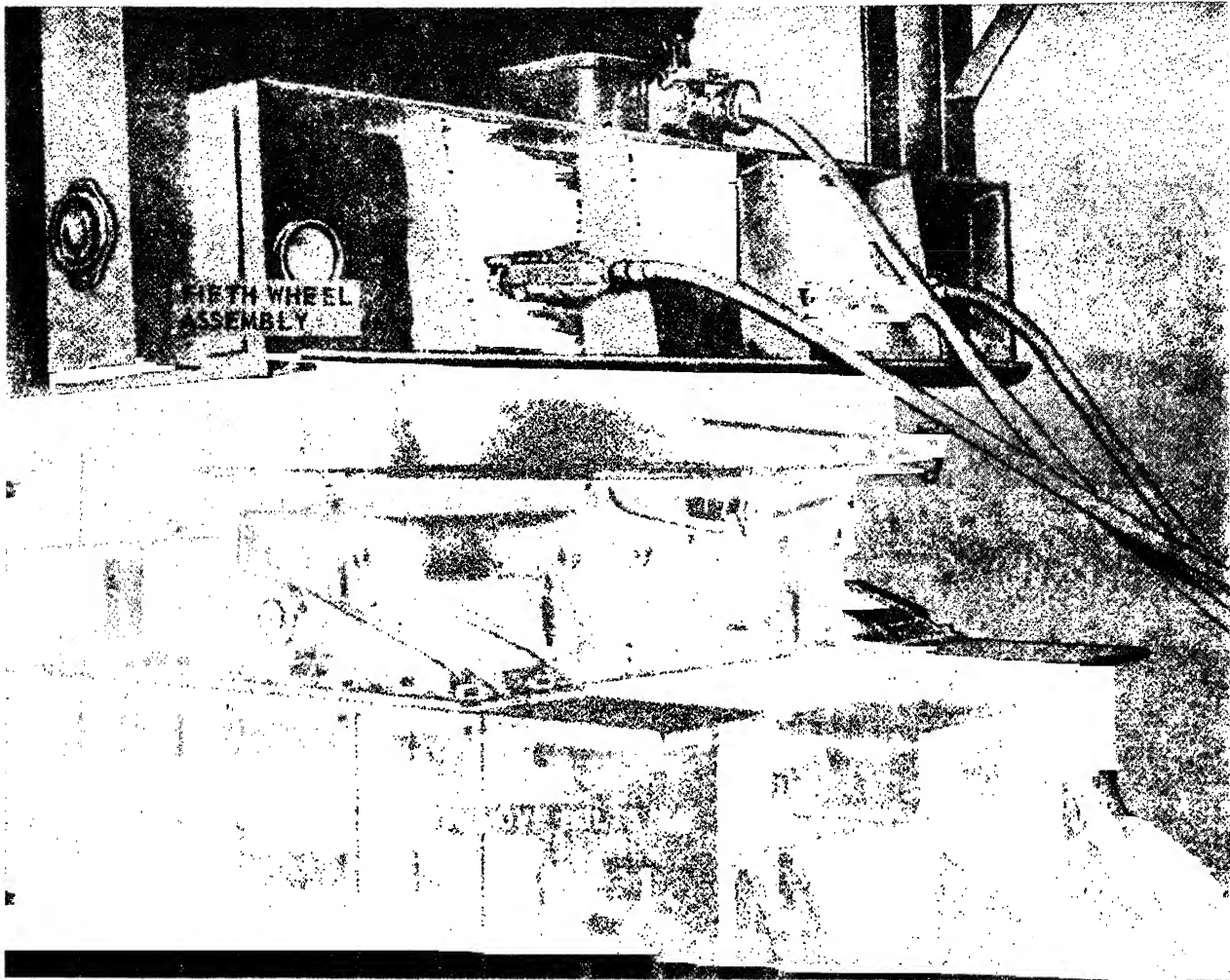
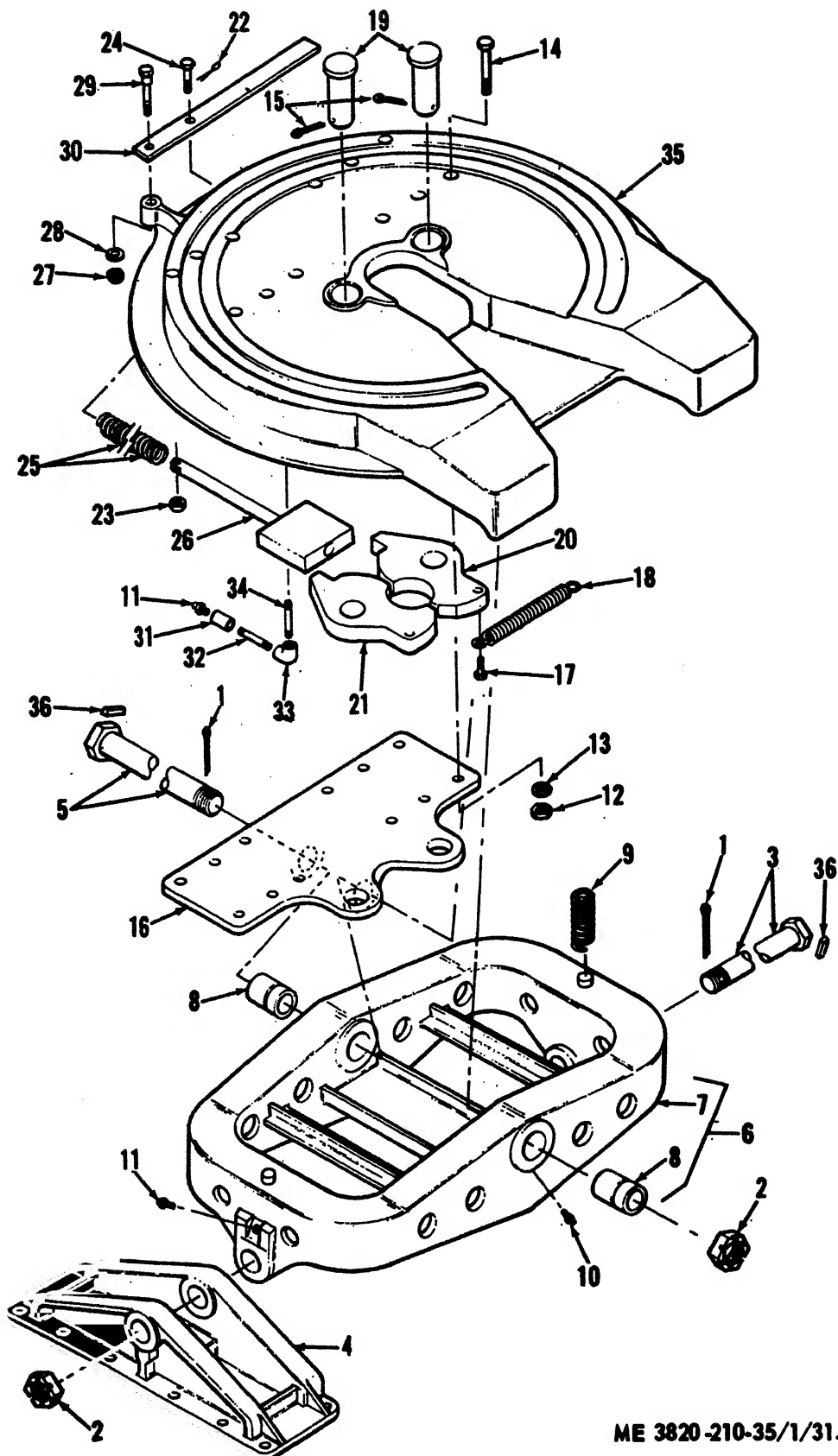


Figure 30.1. Fifth wheel, removal and installation (serial numbers 48X119 thru 48X120).

Paragraph 53. After "figure 31" add "and figure 31.1."

Page 41. Figure 31.1 is added after figure 31.



ME 3820-210-35/1/31.1 C1

- 1 Pin, cotter (2)
- 2 Nut (3)
- 3 Shaft assembly
- 4 Bracket
- 5 Shaft assembly
- 6 Ring assembly
- 7 Ring
- 8 Bushing
- 9 Spring
- 10 Fitting, lubrication (2)
- 11 Fitting, lubrication (5)
- 12 Nut (12)
- 13 Lockwasher (12)
- 14 Bolt (1)
- 15 Pin, cotter (2)
- 16 Bracket
- 17 Screw
- 18 Spring (2)

- 19 Jaw (2)
- 20 Jaw
- 21 Jaw (4)
- 22 Pin, cotter
- 23 Nut
- 24 Bolt
- 25 Spring
- 26 Lock assembly
- 27 Nut
- 28 Lockwasher
- 29 Bolt
- 30 Handle
- 31 Coupling
- 32 Nipple
- 33 Elbow
- 34 Nipple
- 35 Base
- 36 Stop (2)

Page 47. Add section XIII to chapter 3 as follows:

Section XIII. REAR AXLE ASSEMBLY

70.1. Rear Axle (Serial Numbers 48X101 thru 48X118)

a. Removal.

- (1) Jack up washing and screening unit to relieve weight on axle.
- (2) Remove wheels as shown in figure 30, TM 5-3820-210-20/1.
- (3) Remove hub and brake drums as shown in figure 33, TM 5-3820-210-20/1.
- (4) Remove axle as shown in figure 35, TM 5-3820-210-20/1.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect the axle and all parts for cracks, breaks, defective threads, and other damage. Replace a defective part.

c. Installation.

- (1) Install rear axle as shown in figure 35, TM 5-3820-210-20/1.
- (2) Install hub and brake drum as shown in figure 33, TM 5-3820-210-20/1.
- (3) Install wheels as shown in figure 30, TM 5-3820-210-20/1.
- (4) Lower and remove jack from under washing and screening unit.

70.2 Rear Axle (Serial Numbers 48X119 thru 48X120)

a. Removal.

- (1) Jack up washing and screening unit to relieve weight on axle.
- (2) Remove the wheels as shown in figure 30, TM 5-3820-210-20/1.
- (3) Remove the hub and brake drum as shown in figure 33, TM 5-3820-210-20/1.
- (4) Refer to figure 37.1 and remove the rear axle.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for breaks, cracks, damaged threaded areas, or other defects.
- (3) Replace a damaged or defective part.

c. Installation.

- (1) Refer to figure 37.1 and install the rear axle.
- (2) Install the hub and brake drum as shown in figure 33, TM 5-3820-210-20/1.
- (3) Install wheels as shown in figure 30, TM 5-3820-210-20/1.

Page 47. Figure 37.1 is added after figure 37.

BRAKE ADJUSTMENT

1. JACK OR HOIST WHEELS FREE OF GROUND.
2. REMOVE DUST COVER FROM ADJUSTING SLOTS. TWO PLACES ON EACH BRAKE, BELOW THE FORWARD AND ABOVE THE REAR POWER UNIT.
3. ADJUSTING BOLT HAVE RIGHT HAND THREAD. TURN ADJUSTING SPANNER TURN THE STAR WHEEL UNTIL A HEAVY DRUM BRAG IS DEVELOPED. THEN BACK OFF THE BOLT TO A VERY LIGHT BRAG ON THE DRUM. REPEAT FOR OTHER SIDE ON THE BRAKE. REPLACE DUST COVERS IN ADJUSTING SLOTS. REPEAT FOR OTHER BRAKES.

REMOVE NUT (8)

NOTE: DISCONNECT BRAKE HOSES FROM BRAKE POWER UNITS.

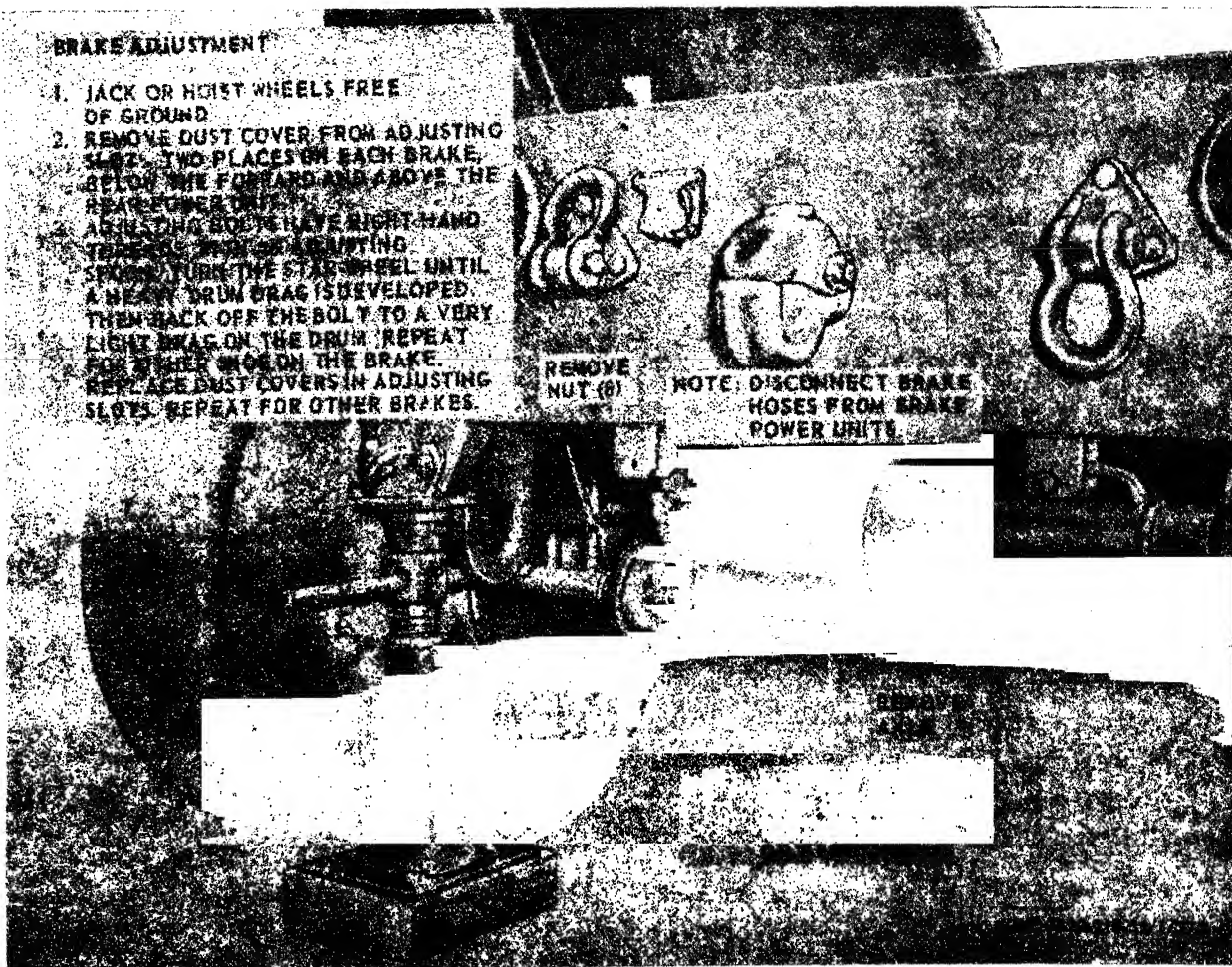


Figure 37.1. Front axle, removal and installation (serial numbers 48X119 thru 48X120).

By Order of the Secretary of the Army

W. C. WESTMORELAND
General United States Army
Chief of Staff

OFFICIAL:

KENNETH G. WICKHAM
Major General, United States Army
The Adjutant General

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Engr FLDMS (2)
MERDC (3)
Engr Cen (5)
AMS (3)
USA Engr Proc Ofc (10)
Fld Comd, DASA (8)
Def Log Svc Cen (1)
MAAG (1)
JBUSMC (1)
USACOMZEUR (2)
USAREUR Engr Sup Con Agcy (10)
USAREUR Engr Proc Cen (2)
Units org under fol TOE:
 5-48 (2)
 5-114 (2)
 5-237 (5)
 5-262 (5)
 5-267 (1)
 5-278 (5)
 5-279 (2)
 5-500 (EA, EB) (2)

ARNG: None.

USAR: Same as Active Army except allowance is one (1) copy each.

For explanation of abbreviations used, see AR 320-50.

TECHNICAL MANUAL }
 No. 5-3820-210-35/1 }

HEADQUARTERS,
 DEPARTMENT OF THE ARMY
 WASHINGTON 25, D.C., 6 June 1962

Field and Depot Maintenance Manual

WASHING AND SCREENING UNIT AGGREGATE: ELECTRIC DRIVEN WHEEL MOUNTED WITH DOLLY WITH 4 DUAL TIRES 75 TON PER HOUR CAPACITY BARBER-GREENE MODEL 48 SSC-G FSN 3820-841-5121

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the use of field and depot maintenance personnel maintaining the Washing and Screening Unit, "Barber-Greene Company Model 48 SSC-G". They provide information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel, or supplies normally available to using organizations.

b. Appendix I contains a list of publications applicable to this manual. The maintenance allocation chart is located in the Organizational Maintenance Manual (TM 5-3820-210-20/1). Field and depot maintenance repair parts are listed in TM 5-3820-210-35P/1.

c. Numbers in parentheses on illustrations indicate quantity.

d. Report all deficiencies in this manual on DA Form 2028. Submit recommendations for changes, additions, or deletions to the Commanding Officer, U.S., Army Engineer Maintenance Center, ATTN: EMCDM, Corps of Engineers, P.O. Box 119, Columbus 16, Ohio. Direct communication is authorized.

e. Report unsatisfactory equipment performance and suggestions for equipment improvement as specified in AR 700-38.

2. Record and Report Forms

For record and report forms applicable to field and depot maintenance, refer to TM 5-505.

Note. Applicable forms, excluding standard Form 46 which is carried by the operator, will be kept in a canvas bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

3. Description

A general description of the Washing and Screening Unit, the location and description of the identification and instruction plates, and information on the difference in models are contained in TM 5-3820-210-10/1. A more detailed description of the components is contained in TM 5-3820-210-20/1. The repair and maintenance instructions are described in appropriate sections of this manual.

4. Tabulated Data

a. Classifier and Scrubber Electric Motor Rebuild Data.

Manufacturer ----- General Electric
Model ----- 5KG4256B2Y23
Horsepower ----- 10
Revolutions per minute ----- 1,745
Volts ----- 208-220/440

Phase ----- 3
Cycles ----- 60
Type ----- KG
Frame ----- 256U
Duty classification ----- Continuous
Amperes ----- 27.4/13.1
Temperature rise ----- 55°
Bearings ----- Ball
Type of inclosure ----- Totally inclosed
Cooling ----- Fan cooled

b. Vibrating Screen Electric Motor Rebuild Data.

Manufacturer ----- General Electric
Model ----- 5KG4284B2Y30
Horsepower ----- 15
Revolutions per minute ----- 1800
Volts ----- 208-220/440
Phase ----- 3
Cycles ----- 60
Type ----- KG
Frame ----- 284U

TM 5-3820-210-35/1

Duty classification -----Continuous
 Amperes -----40.8/20.4
 Temperature rise -----55°
 Bearings -----Ball
 Type of inclosure -----Totally inclosed
 Cooling -----Fan cooled
c. Magnetic Starter Switch Rebuild Data.
 Manufacturer -----General Electric
 Nema size -----1
 Voltage -----440
 Cycles -----60
 Coil number -----55-154667G1
 Heater number -----OR123C19.8B

Heater amperes -----19.3
 Manufacturer -----General Electric
 Model -----CR106D004BNA
 Nema size -----2
 Voltage -----440
 Cycles -----60
 Coil number -----55-154667G2
 Heater number -----CR123C13.7B
 Heater amperes -----13.5

d. Gear Reducer Assembly Repair and Rebuild Data. Table I contains repair and rebuild data for the classifier gear reducer.

Table I. Gear Reducer Assembly Repair and Rebuild Data
 (Dodge No. TD 715)

	Manufacturer's dimensions and tolerance in inches		Desired clearance		Maximum allowable wear	Maximum allowable clearance
	Min	Max	Min	Max		
1st Reduction Gear						
Inside diameter -----	2.1865	2.1865				
Outside diameter -----	10.156	10.161				
Backlash -----			0.004	0.006		
Input Pinion						
Diameter—Key end -----	2.4355	2.4375				
Diameter -----	1.5000	1.5005				
2d Reduction Gear						
Inside diameter -----	5.1163	5.1173				
Outside diameter -----	14.1986	14.1996				
Backlash -----			0.005	0.008		
2d Reduction Pinion						
Diameter—Key end -----	2.1653	2.1659				
Diameter -----	2.1653	2.1659				
KEYS						
1st Reduction						
Width -----	0.3750	0.3760				
Diameter -----	1.365	1.375				
Height -----	0.589	0.594				
2d Reduction						
Width -----	0.749	0.750				
Height -----	0.374	0.375				
Length -----	1-7/8	1-7/8				
Output Hub						
Inside diameter -----	3.9385	3.9410				
Inside diameter -----	3.946	3.951				
Outside diameter -----	5.1179	5.1188				
BEARINGS						
Output Hub						
Shaft o.d. -----	5.1179	5.1188				
Housing i.d. -----	7.8738	7.8752				
Countershaft						
Shaft o.d. -----	2.1653	2.1659				
Housing i.d. -----	4.7243	4.7251				
Input-shaft end						
Shaft o.d. -----	2.5590	2.5596				
Housing i.d. -----	5.5116	5.5126				
Input-backstop end						
Shaft o.d. -----	2.3621	2.3627				
Housing i.d. -----	5.1179	5.1189				

e. Nut and Bolt Torque Data. Vibrating screen high-strength bolts.

Size	Torque Value (ft-lb)
5/8	180
3/4	320
7/8	470
1	710

f. Time Standards. Table II lists the number of man-hours required under normal conditions to perform the indicated maintenance and repair for the washing and screening unit. Components are listed under the appropriate functional index. The man-hours listed are not intended to be rigid standards. Under adverse conditions, the operations will take longer; but under ideal conditions with highly skilled mechanics, most of the operations can be accomplished in considerably less time.

Table II. Time Standards		
Lubrication and service.		Man/hours
12 Brakes		
1206	Mechanical Brake Controls	
	Slack adjusters -----	0.1
	(Lubricate fittings)	
1208.1	Air Brake System	
	Air brake system -----	0.1
	(Drain condensation)	
1208.3	Brake Chambers, Diaphragms,	
	Valves, Filters	
	Air cleaners -----	0.1
	(Remove strainer, clean, dry	
	and replace)	
13 Wheels and Tracks		
1311	Wheel Assembly	
	Bearings, wheel -----	0.5
	(Remove bearings, clean, pack,	
	and replace)	
	Bearings, brake shaft -----	0.1
	(Lubricate fittings)	
1313	Tires, Tubes	
	Tires -----	0.2
	(Replenish air)	
15 Frame		
1503	Pintles and Towing Attachment	
	Pintle -----	0.1
	(Lubricate fittings)	
1506	Fifth Wheel	
	Fifth wheel pin -----	0.1
	(Lubricate fittings)	
	Fifth wheel -----	0.1
	(Lubricate fittings)	
1507	Landing Gear: Leveling Jacks	
	Leveling jacks -----	0.2
	(Lubricate fittings)	
17 Body; Cab; Hood; Hull		
1708	Stowage Racks, Boxes, Straps	
	Reel, power cable -----	0.2
	(Lubricate fittings)	

Table II. Time Standards—Continued
Man/hours

40 Electric Motor		
4000	Motor Assembly	
	Motor -----	0.3
	(Lubricate fittings)	
75 Conveying; Feeding; Crushing; Screening;		
	and Washing Equipment	
7500.2	Drive Shafts	
	Gear reducer assemblies -----	1.0
	(Drain and refill to proper level)	
7500.3	Rollers, Trunnion and Thrust	
	Bearings -----	0.4
	(Lubricate fittings)	
7405.5	Eccentric or Gyrator Shaft	
	Shaft -----	0.5
	(Drain and refill to proper level)	
	Bearings -----	0.1
	(Lubricate fittings)	
7505.2	Screw or Flight Shafts	
	Bearing -----	0.2
	(Lubricate fittings)	
76 Fire Fighting Equipment		
7603	Fire Extinguisher	
	Extinguisher, fire -----	0.1
	(clean)	
	Removal and Replacement	
06 Electrical System		
0609.1	Head, Tail and Marker Lights	
	Light, tail and marker -----	0.1
	Lamps, lens, gasket -----	0.1
0613	Hull or Chassis Wiring Harness	
	Harness, wiring -----	3.0
0617	Trailer Couplings	
	Cable, connector -----	0.1
08 Power Transfer		
0800	Power Transfer Assembly	
	Reducer assembly -----	2.0
	Transfer case -----	1.0
0802.1	Input Shaft -----	2.0
0802.3	Idler Shaft -----	2.0
0802.6	Output Shaft; Main Shaft -----	2.0
0802.7	Ventilation, Breather -----	0.2
10 Front Axle		
1000	Front Axle Assembly -----	1.5
1001.1	Axle and Tongue, Housing Drawbar,	
	Lunette	
	Axle and tongue, lunette -----	1.5
11 Rear Axle		
1100	Rear Axle Assembly -----	2.5
12 Brakes (Other than Special Purpose)		
1202	Service Brakes	
	Brake assembly -----	2.2
	Brake shoe assembly -----	2.0
	Back plate and spider -----	2.0
1206	Mechanical Brake Controls	
	Slack adjuster -----	1.8
1208.1	Air Brake System	
	Liner and fittings -----	1.5

Table II. Time Standards—Continued

	Man/hours
1208.3 Brake Chambers, Diaphragms, Valves, Filters	
Chambers	1.0
Filter, air	0.2
Valve, relay	0.5
1209.3 Air Reservoir, fittings	
Tank and bracket	0.5
1211 Trailer Brake Connections and Controls	
Hoses; fittings	0.3
Coupling	0.1
Grommet	0.1
13 Wheels and Tracks	
1311 Wheel Assembly	
Hub	1.5
Drum, brake	1.5
Bearings	0.5
Seal	0.5
Rim	1.0
1318 Tires and Tubes	
Tire	1.0
Tube	1.0
15 Frame	
1501 Frame Assembly	14.0
1501.1 Platforms; Superstructures; Ramps; Catwalks	
Catwalks and ladder	2.0
Railing	2.0
1503 Pintles and Towing Attachments	
Hitch	0.8
Lunette	0.2
Chains	0.1
1506 Fifth Wheel	
Pin, fifth wheel	0.3
Jaws and lock	1.5
1507 Landing Gear; Leveling Jacks	
Leveling jacks	2.2
17 Body; Cab; Hood; Hull	
1708 Stowage racks, Boxes, Straps	
Reel, power cable	0.5
Tool box	0.3
22 Miscellaneous Body, Chassis or Hull and Accessory Items	
2202.1 Mirrors, Reflectors, Personnel Heaters, Wipers, Air Horns	
Reflectors	0.8
2210 Data Plates and Instruction Holders	
Plates, data	0.2
26 Accessories, Publications, Test Equipment and Tools	
2602.1 Accessories	
Block, chock	0.1
40 Electric Motors	
4000 Motor Assembly	
Motor	1.0
4001 Rotor Assembly	
Rotor	2.0

Table II. Time Standards—Continued

	Man/hours
4002 Stator Assembly	
Stator	5.0
4004 Ventilation System	
Fan	0.5
Guard	0.2
4005 Frame Supports and Housings	
End assemblies; frame, center	5.0
Box, junction	0.2
4007 Drive Components	
Belt	0.2
Pulley	0.3
4009 Control Panel	
Panel	0.3
4010 Controls, Starting; Main or Auxiliary	
Starter, magnetic	1.0
Buttons, push	0.2
Heater	0.1
4014 Terminal Boxes; Panels or Junction Blocks, Wiring, Etc.	
Conduit, flexible	6.0
Wiring	6.0
Cable, power	0.1
Receptacle, power	0.2
75 Conveying; Feeding; Crushing; Screening; and Washing Equipment	
7500.2 Drive Shafts	
Gear reducer assembly	1.0
7500.5 Guards and Attaching Parts	
Guards	3.0
7500.3 Rollers, Trunnion and Thrust	
Trunnion Rollers	4.0
Thrust Roller	1.0
7504.1 Screening Base, Box	
Screening base assembly	4.0
Box	3.0
Door	2.0
Flashing	3.0
Rubber, special shaped	4.0
Spring assembly	1.0
7504.4 Screens and Attaching Parts	
Screens	4.0
Guard plates	3.2
7504.5 Eccentric or Gyrator Shaft	
Shaft assembly	8.0
Bearings	8.0
Gear set	4.0
Counterweights	3.0
Gear housing	2.0
7505 Washer and Dehydrator Components	
Sand classifier assembly	12.0
7505.1 Drums, Hoppers and Chutes	
Drum (Scrubber)	6.0
Hopper (Scrubber)	3.0
Hopper (classifier)	4.0
7506 Hoppers, Spouts, Chutes	
Flume	3.0
76 Fire Fighting Equipment	
7608 Fire Extinguishers	
Extinguisher, fire	0.1

CHAPTER 2

GENERAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

5. Special Tools and Equipment

There are no special tools required to perform field and depot maintenance on the Barber-Greene Model 48 SSC-G Washing and Screening Unit.

6. Field and Depot Maintenance Repair Parts

Field and Depot Maintenance Repair Parts are listed and illustrated in TM 5-3820-210-35P/1.

7. Specially Designed Tools and Equipment

No specially designed tools or equipment are required by field and depot maintenance personnel for performing maintenance on the washing and screening unit.

Section II. TROUBLESHOOTING

8. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the washing and screening unit or any of its components. Each trouble symptom stated is followed by a list of probable causes of trouble. The possible remedy recommended is described opposite the probable cause.

9. Washing and Screening Unit Motors Fail to Start

<i>Probable cause</i>	<i>Possible remedy</i>
Power off -----	Check main power source.
Defective push button -----	Replace (TM 5-3820-210-20/1).
Defective starter -----	Repair or replace starter (par. 40).

10. Electric Motor Overheats, Circuit Breakers Kick Out

<i>Probable cause</i>	<i>Possible remedy</i>
Low voltage -----	Check main power source.
Driven unit malfunctioning.	Check scrubber gear reducer (par. 35), or classifier gear reducer (par. 36) or vibrating screen drive unit (par. 24).

11. Scrubber Thrust Roller Heats Up

<i>Probable cause</i>	<i>Possible remedy</i>
Scrubber unit not level on main frame.	Correct (TM 5-3820-210-10/1).
Defective thrust roller -----	Repair or replace (par. 21).
Defective drum roller or bearing.	Repair or replace (par. 20).

12. Noise in Classifier Gear Reducer

<i>Probable cause</i>	<i>Possible remedy</i>
Defective gears or bearings.	Repair or replace (par. 36).

13. Noise in Scrubber Gear Reducer

<i>Probable cause</i>	<i>Possible remedy</i>
Defective gears or bearings.	Repair or replace (par. 35).

14. Noise in Vibrating Screen Drive Unit

<i>Probable cause</i>	<i>Possible remedy</i>
Defective gears or bearings.	Repair or replace (par. 24).

Section III. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

15. Scrubber Unit

a. *Removal.* Remove the scrubber unit (TM 5-3820-210-10/1).

b. *Installation.* Install the scrubber unit (TM 5-3820-210-10/1).

16. Vibrating Screen

a. *Removal.*

(1) Remove the scrubber unit (TM 5-3820-210-10/1).

(2) Remove the vibrating screen (TM 5-3820-210-10/1).

b. *Installation.*

(1) Install the vibrating screen (TM 5-3820-210-10/1).

(2) Install the scrubber unit (TM 5-3820-210-10/1).

17. Classifier Unit

a. *Removal.*

(1) Remove the scrubber unit (TM 5-3820-210-10/1).

(2) Remove the vibrating screen (TM 5-3820-210-10/1).

(3) Remove the walkways and handrails (TM 5-3820-210-10/1).

(4) Remove the discharge chute (TM 5-3820-210-10/1).

(5) Remove the classifier unit as shown in figure 1.

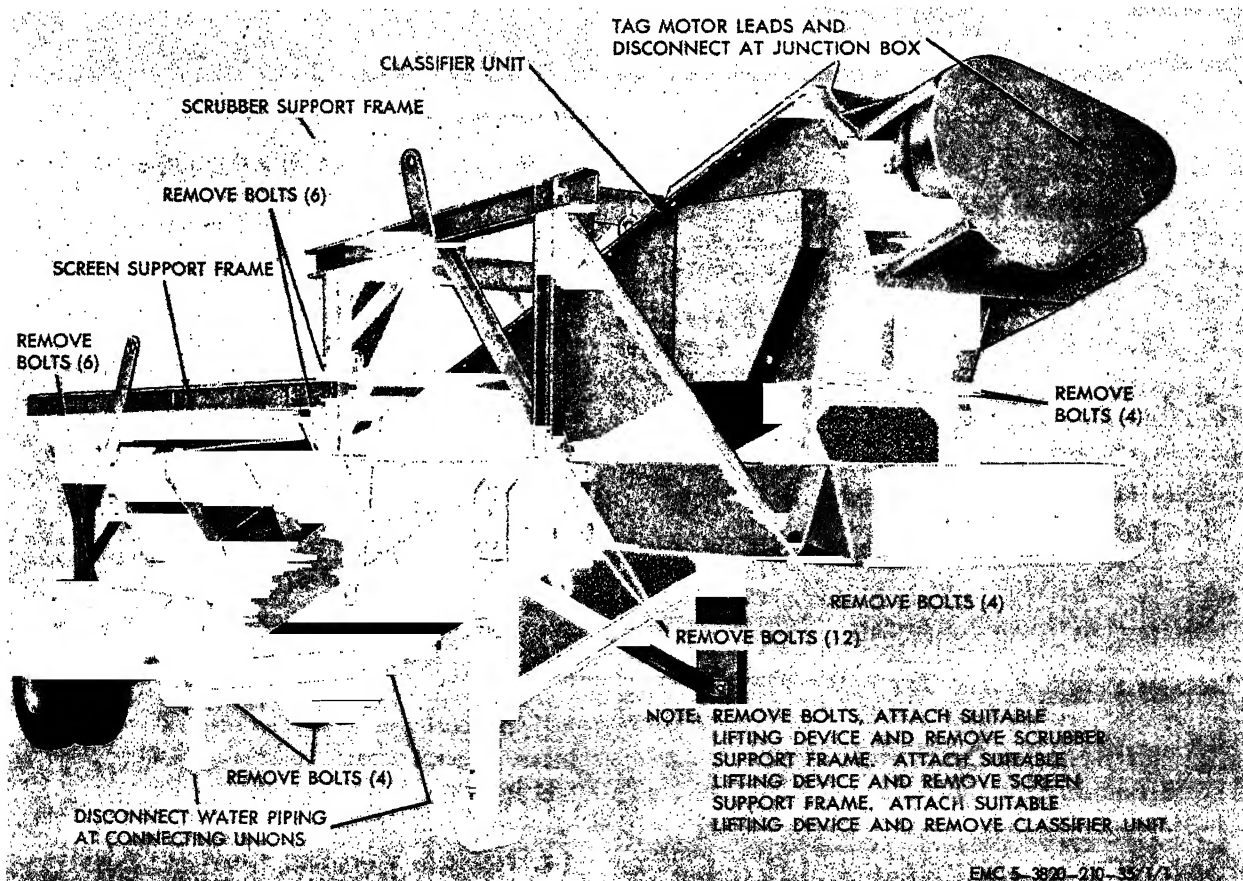


Figure 1. Classifier unit, removal and installation.

b. Installation.

- (1) Install classifier unit as shown in figure 1.
- (2) Install discharge chute (TM 5-3820-210-10/1).
- (3) Install walkways and handrails (TM 5-3820-210-10/1).
- (4) Install vibrating screen (TM 5-3820-210-10/1).
- (5) Install scrubber unit (TM 5-3820-210-10/1).

CHAPTER 3

FIELD AND DEPOT MAINTENANCE REPAIR INSTRUCTIONS

Section I. SCRUBBER UNIT

18. Description

The scrubber unit is mounted near the center of the mainframe on a support frame straddling the classifier, and is electric motor driven with a gear reducer. The scrubber unit consists of a receiving hopper, rotary drum which rotates on four trunnion rollers, thrust roller, gear reducer, electric motor and water piping.

19. Drum Assembly

a. General. The drum assembly of the scrubber may be removed with the scrubber main frame in place on the washing and scrub-

bing unit. For ease, safety, and efficiency of the maintenance operation, it is advisable to remove the scrubber assembly as a unit, so the work may be performed at ground level.

b. Removal.

- (1) Remove the scrubber assembly from the washing and screening unit, (TM 5-3820-210-10/1).
- (2) Remove the hold-down turnbuckles (TM 5-3820-210-10/1).
- (3) Remove all scrubber water piping (TM 5-3820-210-20/1).
- (4) Remove receiving hopper and remove drum assembly as shown in figure 2.

Figure 2. Drum assembly, removal and installation.

c. *Disassembly.* Disassemble the drum assembly in numerical sequence as shown in figure 3.

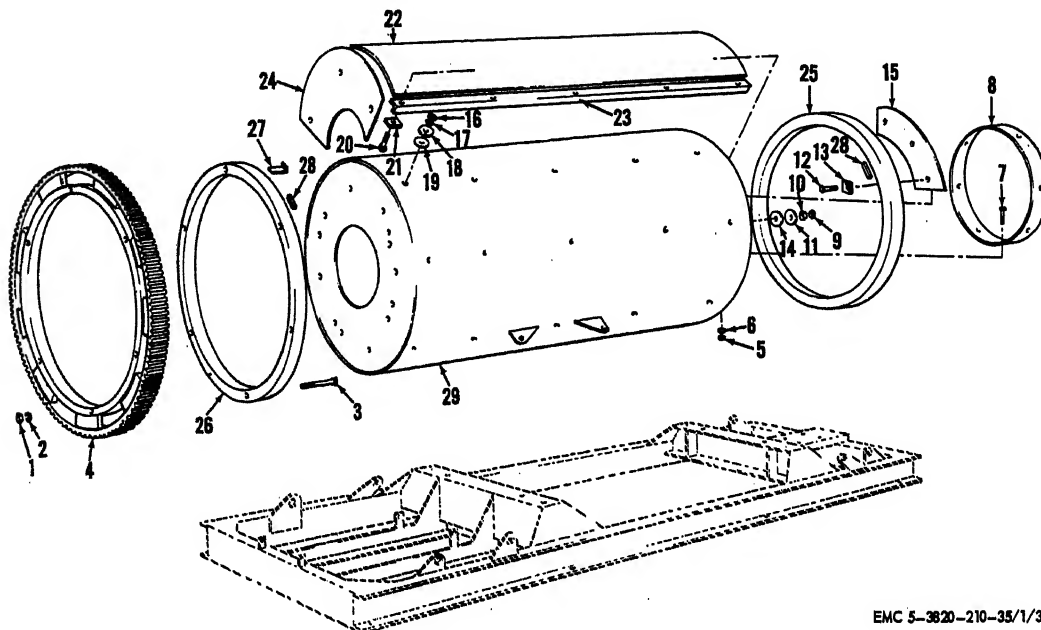
d. *Cleaning and Inspection.*

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for cracks, breaks, and wear. Replace or repair all defective or damaged parts.

e. *Reassembly.* Reassemble the drum assembly in the reverse order of the numerical sequence shown in figure 3.

f. *Installation.*

- (1) Install drum assembly and receiving hopper as shown in figure 2.
- (2) Install all scrubber water piping (TM 5-3820-210-20/1).
- (3) Install the hold-down turnbuckles (TM 5-3820-210-10/1).



EMC 5-3820-210-35/1/3

- | | |
|--------------------------------------|--|
| 1 Nut, hex hd, 1" (6 rqr) | 16 Palnut, 3/4" (40 rqr) |
| 2 Washer, lock, 1" (6 rqr) | 17 Nut, hex hd 3/4" (40 rqr) |
| 3 Bolt, machine, 1" x 7-1/2" (6 rqr) | 18 Washer, cut 3/4" (40 rqr) |
| 4 Gear, ring | 19 Washer, flat 3/4" (40 rqr) |
| 5 Palnut, 5/8" (8 rqr) | 20 Bolt, machine, 3/4" x 2-3/4" (40 rqr) |
| 6 Nut, hex hd, 5/8" (8 rqr) | 21 Shield, bolt hd (40 rqr) |
| 7 Bolt, machine, 5/8" x 2" (8 rqr) | 22 Plate, wear (8 rqr) |
| 8 Cylinder, discharge | 23 Angle, lift (8 rqr) |
| 9 Palnut, 5/8" (24 rqr) | 24 Plate, liner (4 rqr) |
| 10 Nut, hex hd, 5/8" (24 rqr) | 25 Ring, roller (welds to drum) |
| 11 Washer, cut, 5/8" (24 rqr) | 26 Ring, roller (welds to drum) |
| 12 Bolt, machine, 5/8" x 2" (24 rqr) | 27 Shim (3 rqr) |
| 13 Shield, bolt hd (24 rqr) | 28 Bar, roller ring (8 rqr) |
| 14 Washer, flat, 5/8" (24 rqr) | 29 Drum |
| 15 Plate, liner (4 rqr) | |

Figure 3. Drum assembly, exploded view.

- (4) Install the scrubber assembly on the washing and screening unit (TM 5-3820-210-10/1).

20. Trunnion Roller and Shaft Assemblies

a. General. The trunnion roller and shaft assemblies may be removed with the scrubber main frame in place on the scrubber unit. For ease, safety, and efficiency of the maintenance operation, it is advisable to remove the scrubber assembly as a unit, so the work may be performed at ground level.

b. Removal.

- (1) Remove the scrubber assembly from the washing and screening unit (TM 5-3820-210-10/1).
- (2) Remove the drum assembly (par. 19).
- (3) Remove the trunnion roller and shaft assemblies as shown in figure 4.

c. Disassembly. Disassemble the trunnion roller and shaft assemblies in numerical sequence shown in figure 5.

d. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.

- (2) Inspect all parts for cracks, breaks or damage. Replace all defective or damaged parts.
- (3) Inspect bearings for worn, scored or pitted condition. Replace damaged or defective parts.

e. Reassembly. Reassemble the trunnion roller and shaft assemblies in reverse order of the numerical sequence shown in figure 5.

f. Installation.

- (1) Install trunnion roller and shaft assemblies as shown in figure 4.
- (2) Install drum assembly (par. 19).
- (3) Install scrubber assembly on washing and screening unit (TM 5-3820-210-10/1).

21. Thrust Roller Assembly

a. General. It is not necessary to remove the drum assembly off the scrubber unit to remove or install the thrust roller assembly.

b. Removal. Remove the thrust roller assembly as shown in figure 4.

c. Disassembly. Disassemble thrust roller assembly in numerical sequence as shown in figure 6.

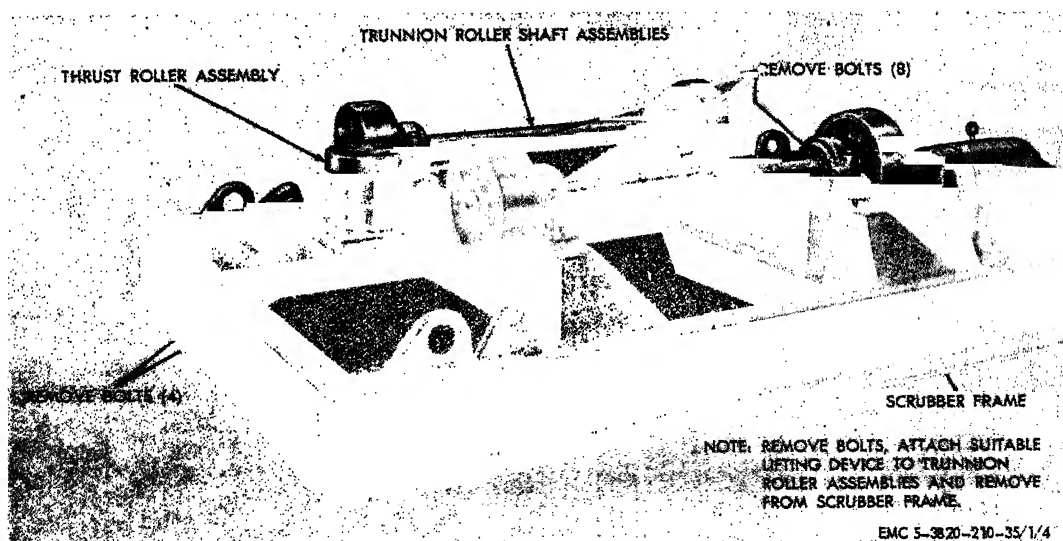
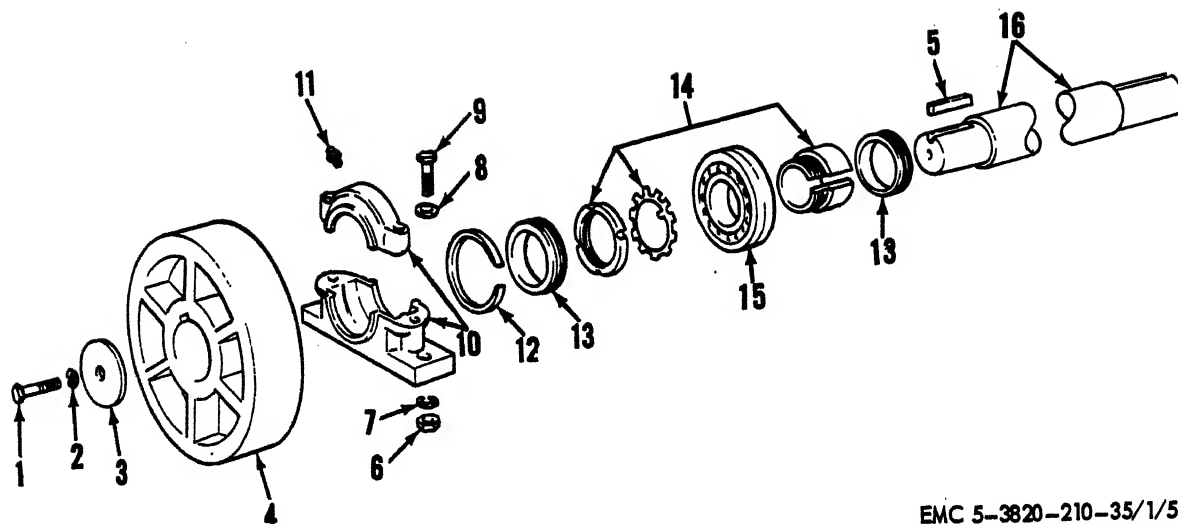


Figure 4. Trunnion roller shaft assembly and thrust roller assembly, removal and installation.



EMC 5-3820-210-35/1/5

- 1 Screw, cap, 7/8" x 1-3/4" (4 rqr)
- 2 Washer, lock, 7/8 (4 rqr)
- 3 Washer, retaining (4 rqr)
- 4 Roller (4 rqr)
- 5 Key (4 rqr)
- 6 Nut, hex hd, 3/4" (8 rqr)
- 7 Washer, lock, 3/4" (8 rqr)
- 8 Washer, cut, 3/4" (8 rqr)

- 9 Bolt, machine, 3/4" x 3" (8 rqr)
- 10 Housing, bearing (4 rqr)
- 11 Fitting, grease (4 rqr)
- 12 Ring, stabilizer (2 rqr)
- 13 Seal, triple ring, (8 rqr)
- 14 Adapter, lock nut and lockwasher (4 rqr)
- 15 Bearing (4 rqr)
- 16 Shaft (2 rqr)

Figure 5. Trunnion roller and shaft assembly, exploded view.

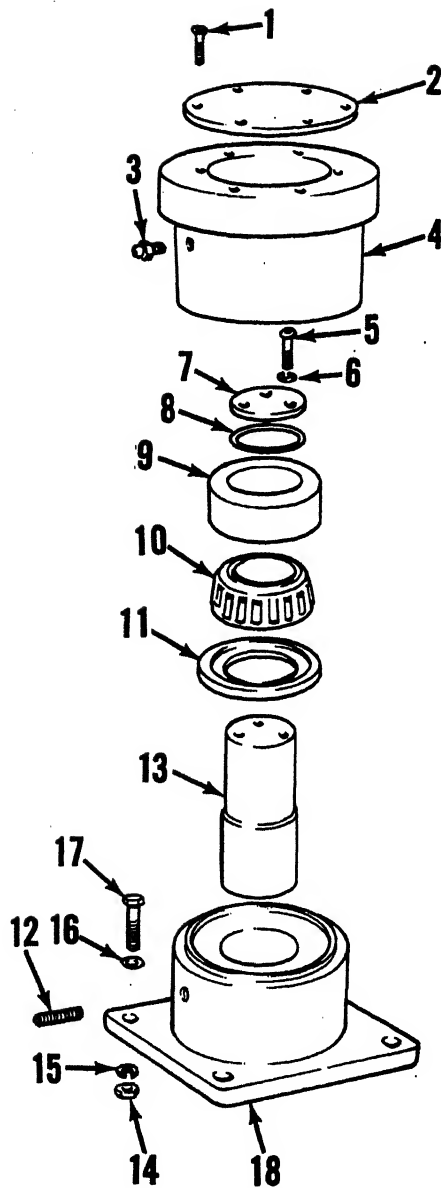
d. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for cracks, breaks, and worn or damaged parts. Replace worn, scored, pitted, or defective bearings. Replace damaged or defective parts.

e. Reassembly. Reassemble the thrust roller assembly in reverse order of numerical sequence shown in figure 6.

Note. Details for installing and adjusting bearing (15 fig. 5) are given in paragraph 81.

f. Installation. Install the thrust roller assembly as shown in figure 4.



- 1 Screw, flt hd socket 5/16" x 3/4" (6 rqr)
- 2 Plate, cover
- 3 Fitting, grease
- 4 Roller, thrust
- 5 Screw, cap, but hd, 1/2 x 1-1/2" (8 rqr)
- 6 Washer, lock, 1/2" (3 rqr)
- 7 Washer
- 8 Shim (AsR)
- 9 Cup, bearing (2 rqr)
- 10 Bearing, cone and rollers (2 rqr)
- 11 Seal, oil
- 12 Setscrew, skt hd 5/8" x 1-3/4"
- 13 Shaft
- 14 Nut, hex hd; 7/8" (4 rqr)
- 15 Washer, lock, 7/8" (4 rqr)
- 16 Washer, cut, 7/8" (4 rqr)
- 17 Bolt, machine 7/8 x 2-3/4" (4 rqr)
- 18 Base, thrust roller

Figure 6—Continued.

EMC 5-3820-210-35/1/6

Figure 6. Thrust roller assembly, exploded view.

Section II. VIBRATING SCREEN

22. Description

The vibrating screen assembly is mounted at the rear of the main frame over the classifier and is electric motor driven.

The vibrating screen consists of a screen box, support springs, three screen decks for the wire screen cloths, vibrating drive unit, water spray piping and electric motor.

23. Counterweights

a. Removal.

- (1) Remove cover and gasket of vibrating drive unit as shown in A, figure 7.
- (2) Remove counterweights (one on each shaft) as shown in B, figure 7.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect for cracks, breaks and other damage. Inspect bolts for damaged or stripped threads. Replace a defective or damaged part.

c. Installation.

- (1) Install counterweights (one on each shaft) as shown in B, figure 7. Be sure both counterweights are of the same size and thickness.
- (2) Install cover and gasket of vibrating drive unit as shown in A, figure 7.

24. Vibrating Drive Unit Assembly

a. *General.* The vibrating drive unit may be removed from its position on the vibrating screen frame without removing the vibrating screen assembly from the washing and screening unit.

b. Removal.

- (1) Remove drive V-belts (TM 5-3820-210-20/1).
- (2) Remove the vibrating drive unit from the screen box as shown in figure 8.

c. *Disassembly.* Disassemble the vibrating drive unit in numerical sequence as shown in figure 9.

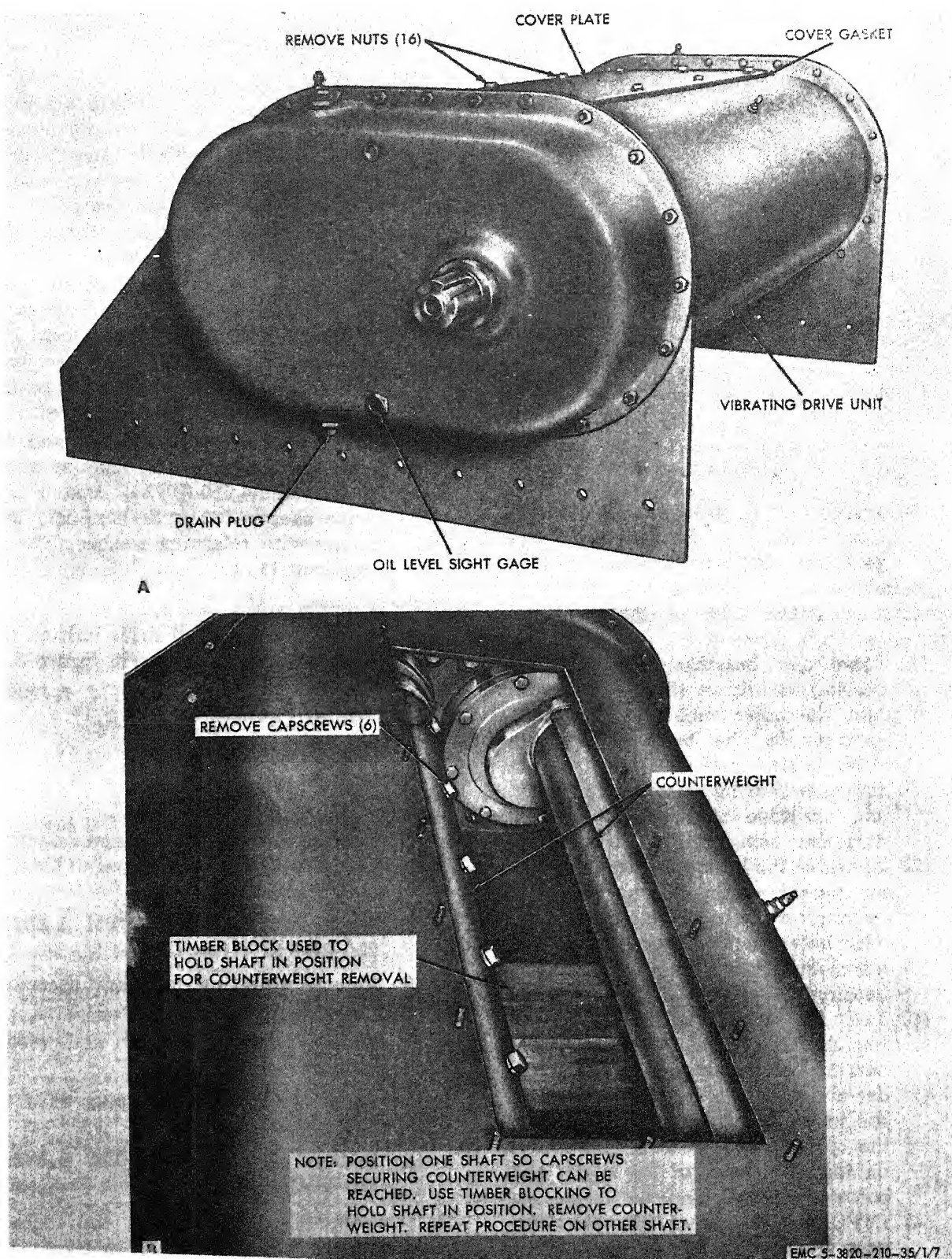
- (1) Drain oil from both end covers (5) Figure 9, by removing drain plugs (11). Remove the cap screw (1), retaining washer (2) and drive sheave (3). Remove cap screws (12) and remove cover plate (13).
- (2) Remove the cap screws (4) attaching end covers to the unit housing (41) and remove end covers. Be careful not to damage seals (7) in the end covers.
- (3) Remove the driven gear retaining washer (16). Remove gear key (22) by inserting a 1/2-13 bolt in the tapped hole and pulling key out of

keyway. Remove gear (23) from shaft.

- (4) Remove cap screw, shaft end cap (17), seal collar (20), and spacer (21). Remove drive gear keys (18) and drive gear (19) in the same manner as described in step (3) above.
- (5) Remove the outer seal collar (24), oil slinger (25), inner spacer collar (26) from the shaft with keys (27). Any one or all of the bearing assemblies may now be removed.
- (6) Turn the eccentric shafts (37 and 38) so that the offset portion is uppermost and secure them with a piece of 2x4 timber. Remove the bolts (28) holding bearing mounting (35) in the unit housing. The bearing assemblies (29) can now be removed from the shaft.
- (7) To disassemble the bearing assemblies remove the bolts (30) attaching the retaining ring (31) to the bearing mountings and remove the ring. Using a suitable press, press bearings (34) from the mountings.

d. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect bearing races and rollers for cracks, breaks, signs of scoring or excessive wear. Replace damaged or defective parts. Inspect bearing mounting for cracks, breaks, or other damage. Replace defective or damaged parts.
- (3) Inspect drive gears for excessively worn, damaged or cracked teeth. Replace gears with damaged or defective teeth.
- (4) Inspect shafts for scoring, cracks and breaks. Replace damaged shafts.
- (5) Inspect housing and end cover for cracks, breaks or other damage. Repair or replace damaged or defective parts.
- (6) Inspect oil seals, o-rings and gaskets for breaks, brittleness, or excessive wear. Replace damaged or defective parts.



A—Cover plate, removal and installation.
B—Counterweight, removal and installation.
Figure 7. Counterweight, removal and installation.

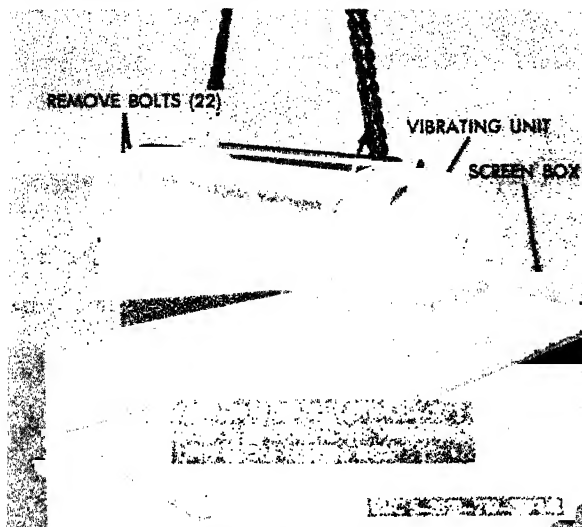


Figure 8. Vibrating drive unit, removal and installation.

- (7) Inspect all threaded parts for condition of threads. Repair or replace parts with damaged threads.

e. Reassembly. Reassemble the vibrating drive unit in reverse order of the numerical sequence shown in figure 9.

- (1) Press new bearings (34) into the bearing mountings (35), making certain the outer race seats with the shoulder in the bearing mounting bore. Install new oil seals (33) in the inner bearing retaining ring (31), and assemble ring to the bearing mounting using gasket (32).
- (2) Assemble the bearing assemblies (29) on one side of the unit housing (41) making certain to install a new O-ring (36) between the flange of the bearing mounting and the side of the unit housing.
- (3) Push the journal ends of the eccentric shafts (37 and 38) through the bearing bores making sure the shoulder at the end of the journal contacts the inner race of the bearing. Place the opposite end bearing assemblies on the other ends of the shafts and bolt to unit housing.
- (4) **IMPORTANT**—Check internal clearance of bearings (distance between

top roller and outer race) with feeler gage. This should be a minimum of 0.004 inches.

- (5) Replace the gears (19) and (23) making sure they are correctly timed by aligning match marks on the outside edge of the gear teeth. Insert keys (18 and 22), replace retainer washer (16), space (21), seal collar (20), shaft end cap (17) and secure with capscrews (1).
- (6) Replace the inner spacer collar (26), oil slinger (25), oil seal collar (24) and keys (27) on the drive shaft. Replace end covers (5) using new gaskets (6). Prior to replacing end covers replace oil seals (7) if required.
- (7) Replace oil drain plugs (11) and fill with proper grade and amount of oil (TM 5-3820-210-10/1). Install the drive sheave (3) with key (27) and secure with retaining washer (2) and capscrew (1).

f. Installation.

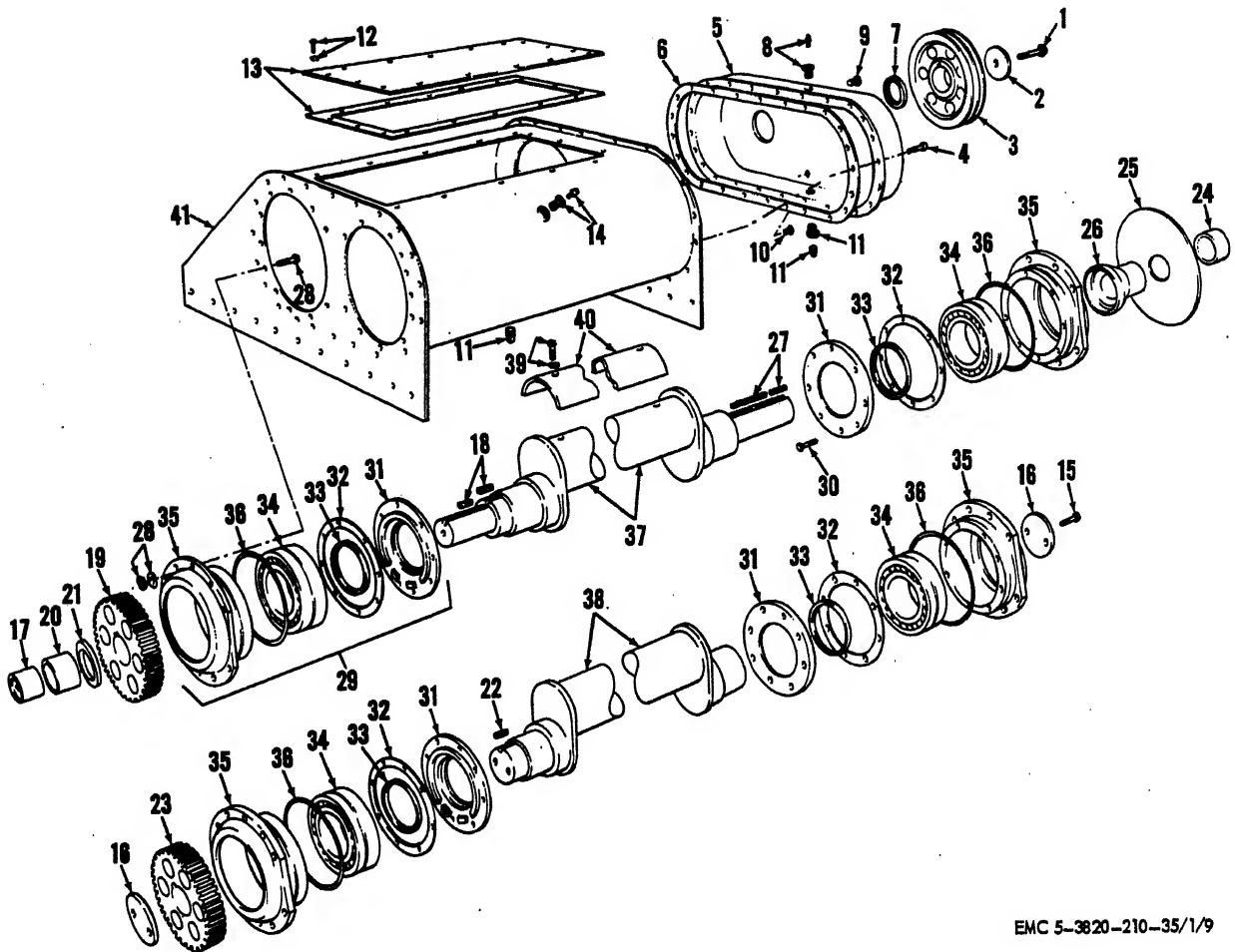
- (1) Install the vibrating drive unit on the screen frame as shown in figure 8.
- (2) Install drive V-belts (TM 5-3820-210-20/1).

25. Screen Box

a. Removal.

- (1) Remove the vibrating screen assembly and place at ground level (TM 5-3820-210-10/1).
- (2) Remove drive V-belts (TM 5-3820-210-20/1).
- (3) Remove vibrating drive unit assembly (par. 24).
- (4) Remove electric motor and motor support (par. 39).
- (5) Remove water spray piping (TM 5-3820-210-20).
- (6) Remove screen cloths (TM 5-3820-210-20/1).

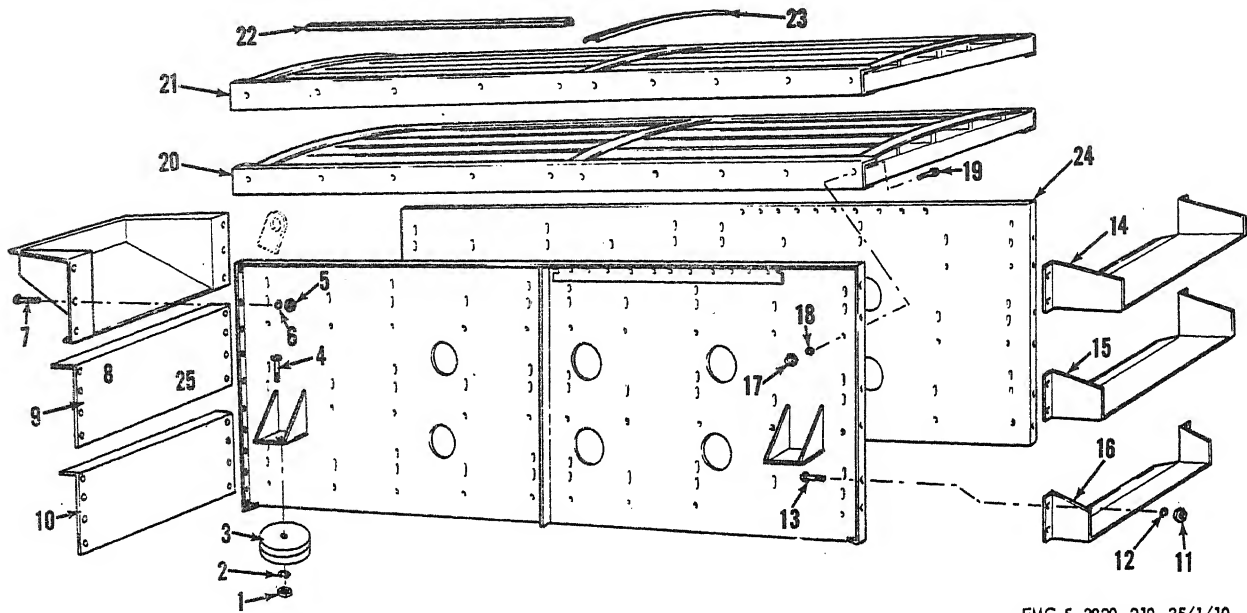
b. Disassembly. Disassemble the screen in numerical sequence as shown in figure 10.



EMC 5-3820-210-35/1/9

- | | |
|---|--|
| 1 Bolt and lock, shaft end cap (2 rqr) | 22 Key, driven gear |
| 2 Washer, retaining | 23 Gear, driven |
| 3 Sheave, drive | 24 Seal, collar |
| 4 Capscrew, nuts, and lockwashers, end cover (44 rqr) | 25 Slinger, oil |
| 5 End cover (2 rqr) | 26 Collar, spacer |
| 6 Gasket, end cover (2 rqr) | 27 Key, drive end (2 rqr) |
| 7 Seal, oil, end cover (2 rqr) | 28 Bolts, bearing mounting (40 rqr) |
| 8 Plug, oil filler with breather (2 rqr) | 29 Bearing assemblies (4 rqr) consists of items 30 thru 35 |
| 9 Gage, oil level sight (2 rqr) | 30 Screw, cap, retaining ring (32 rqr) |
| 10 Plug, end cover (2 rqr) | 31 Ring, bearing retaining (4 rqr) |
| 11 Plug, drain (4 rqr) | 32 Gasket, retaining (4 rqr) |
| 12 Screw, cap, cover plate (16 rqr) | 33 Seal, oil, retaining ring (4 rqr) |
| 13 Plate with gasket, cover | 34 Bearing (4 rqr) |
| 14 Plug, breather | 35 Mounting, bearing (4 rqr) |
| 15 Bolt, retaining washer (4 rqr) | 36 O-ring, bearing mounting (4 rqr) |
| 16 Washer, retaining (2 rqr) | 37 Shaft, driven |
| 17 Cap, shaft end | 38 Shaft, drive |
| 18 Key, drive gear (2 rqr) | 39 Belt, nut and lockwasher, counterweight (12 rqr) |
| 19 Gear, drive | 40 Counterweight (2 rqr) |
| 20 Collar, seal | 41 Housing, drive unit |
| 21 Spacer | |

Figure 9. Vibrating drive unit, exploded view.



EMC 5-3820-210-35/1/10

- | | |
|---|---|
| 1 Nut, hex, 3/4 in. (4 rqr) | 14 Chute, top deck, discharge |
| 2 Washer, lock, 3/4 in. (4 rqr) | 15 Chute, middle deck, discharge |
| 3 Cup, spring (4 rqr) | 16 Chute, bottom deck, discharge |
| 4 Bolt, mach. 3/4 x 3-1/4 in. (4 rqr) | 17 Nut, hex 5/8 in. (60 rqr) |
| 5 Nut, hex 5/8 in. (18 rqr) | 18 Washer, lock, 5/8 in. (60 rqr) |
| 6 Washer, lock, 5/8 in. (18 rqr) | 19 Bolt, mach. 5/8 x 1-3/4 in. (60 rqr) |
| 7 Bolt, mach. 5/8 x 1-3/4 in. (18 rqr) | 20 Tray, bottom and middle screen (2 rqr) |
| 8 Box, feed | 21 Tray, top deck screen |
| 9 Plate, feed end | 22 Strip, channel rubber (20 rqr) |
| 10 Plate, feed end | 23 Strip, rubber backing (9 rqr) |
| 11 Nut, hex, 5/8 in. (12 rqr) | 24 Plate, RH side |
| 12 Washer, lock, 5/8 in. (12 rqr) | 25 Plate, LH side |
| 13 Bolt, mach. 5/8 x 3-1/2 in. (12 rqr) | |

Figure 10. Screen box, exploded view.

c. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for breaks, cracks, defective threads and other damage.
- (3) Replace or repair damaged or defective parts.

d. Reassembly. Reassemble the screen box by reversing the numerical sequence shown in figure 10.

e. Installation.

- (1) Install the screen cloths (TM 5-3820-210-20/1).

- (2) Install water piping (TM 5-3820-210-20/1).

- (3) Install electric motor support and motor (par. 39).

- (4) Install vibrating drive unit assembly (par. 24).

- (5) Install drive V-belts (TM 5-3820-210-20/1).

- (6) Install vibrating screen assembly on washing and screening unit main frame (TM 5-3820-210-10/1).

Section III. CLASSIFIER

26. Description

The classifier unit is mounted a 20° incline within the main frame under the vibrating screen and scrubber. The classifier consists of a wash box, hopper, single screw, gear reducer, electric motor and water piping.

27. Hopper and Components

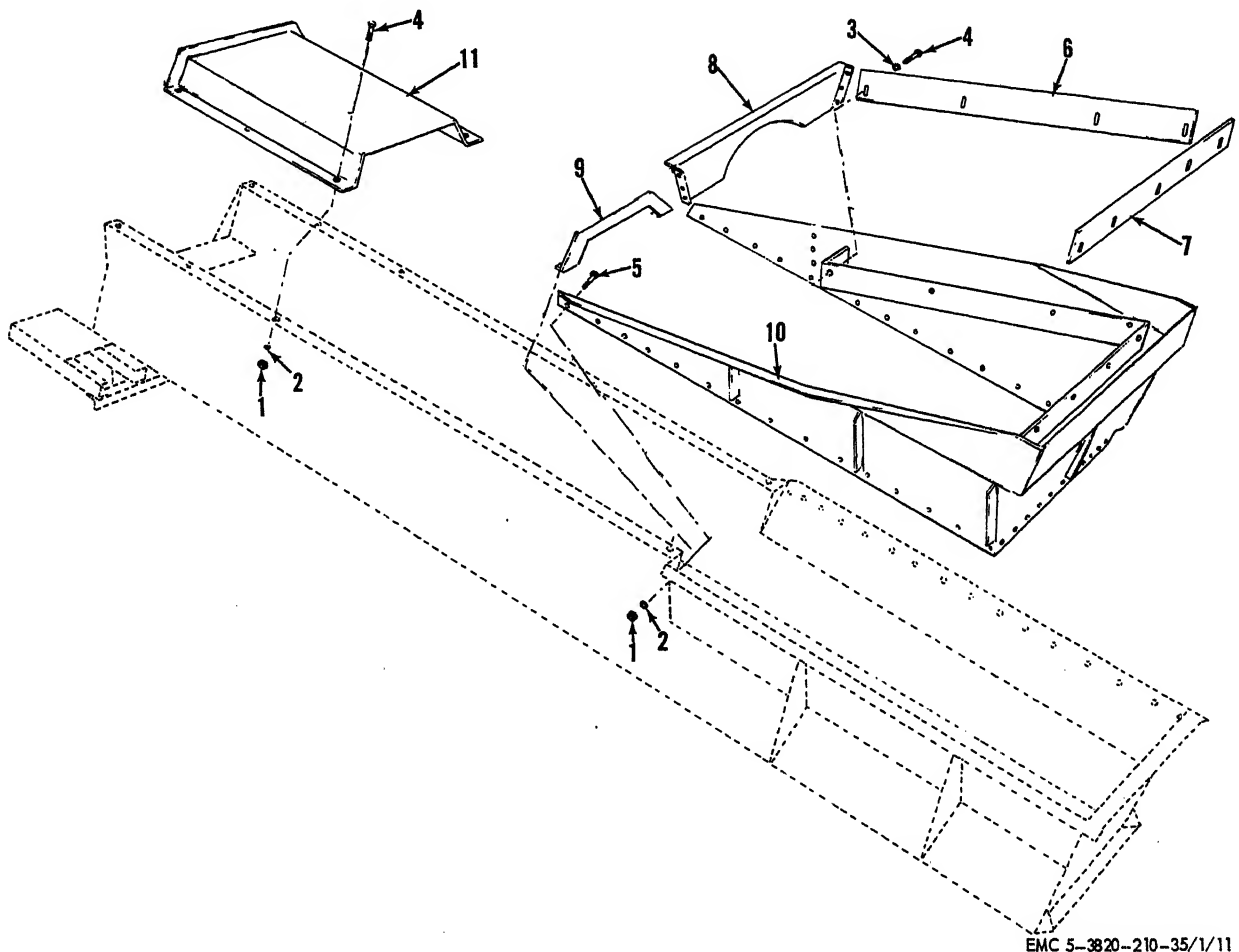
a. Removal and Disassembly.

- (1) Remove scrubber unit (TM 5-3820-210-10/1).

- (2) Remove vibrating screen unit (TM 5-3820-210-10/1).
- (3) Remove hopper and components in numerical sequence as shown in figure 11.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect for cracks, breaks, defective threads and other damage.



- | | |
|--|---------------------|
| 1 Nut, hex hd, 5/8" (94 rqr) | 7 Plate, end weir |
| 2 Washer, lock, 5/8" (94 rqr) | 8 Plate, baffle |
| 3 Washer, flat, 5/8" (13 rqr) | 9 Brace, cross |
| 4 Bolt, machine, 5/8" x 1-1/2" (9 rqr) | 10 Hopper |
| 5 Bolt, machine, 5/8" x 1-3/4" (4 rqr) | 11 Cover, upper end |
| 6 Plate, side weir (2 rqr) | |

Figure 11. Classifier hopper and components, removal and installation.

- (3) Replace or repair a damaged or defective part.

c. Reassembly and Installation.

- (1) Install hopper and components on wash box by reversing the numerical sequence shown in figure 11. Install caulk cord around joints between the wash box and hopper.
- (2) Install vibrating screen unit (TM 5-3820-210-10/1).
- (3) Install scrubber unit (TM 5-3820-210-10/1).

28. Flight Shaft Assembly

a. Removal.

- (1) Remove the classifier unit from the main frame (par. 17).
- (2) Remove the gear reducer (TM 5-3820-210-20/1).
- (3) Remove the flight shaft assembly from the classifier wash box as shown in figure 12.

b. Disassembly.

- (1) Remove flight segments from flight shaft (TM 5-3820-210-20/1).
- (2) Remove upper end bearing from stub shaft (par. 32).
- (3) Remove upper and lower end stub shafts from main shaft as shown in figure 13.

c. Cleaning and Inspection.

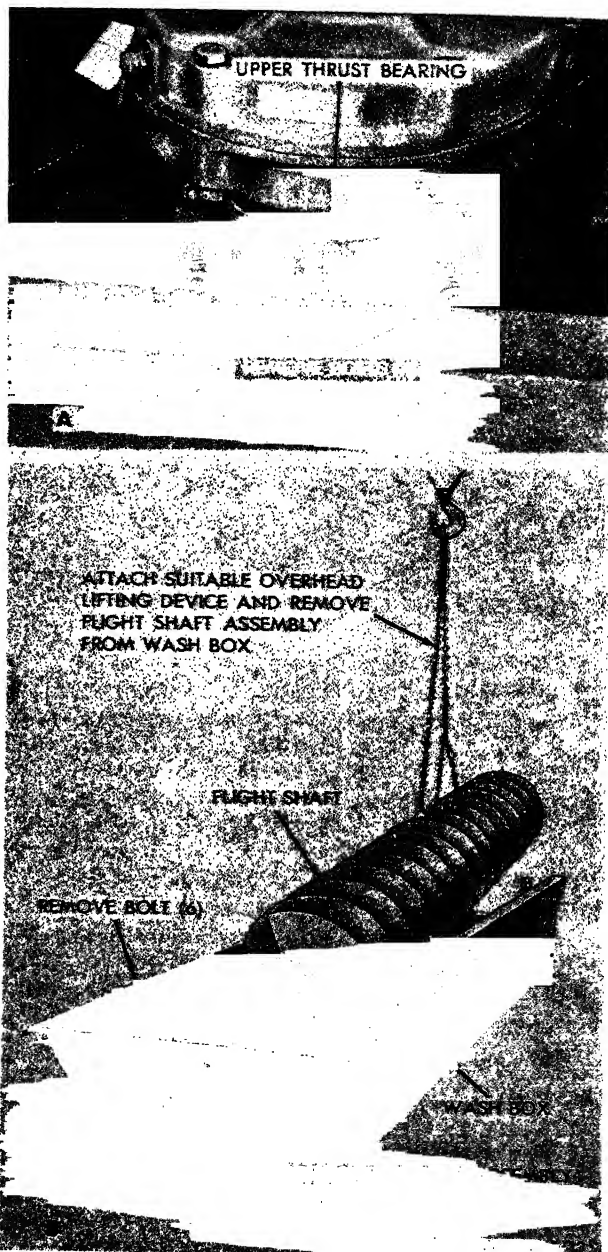
- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect the flight shaft and stub shafts for cracks, breaks and other damage. Replace a defective stub shaft.
- (3) Inspect all hardware for cracks, breaks, defective threads, and other damage. Replace a defective part.

d. Reassembly.

- (1) Install upper and lower end stub shafts to main shaft as shown in figure 13.
- (2) Install flight segment on flight shaft (TM 5-3820-210-20/1).

e. Installation.

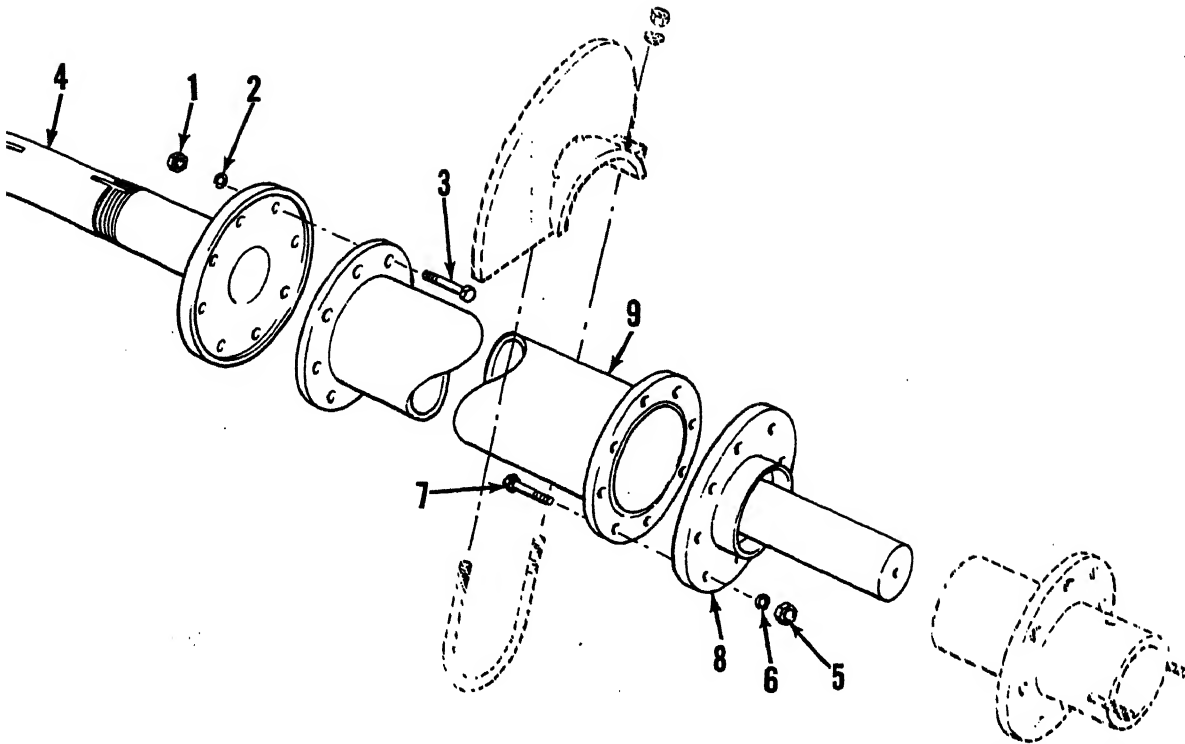
- (1) Install flight assembly in classifier box as shown in figure 12.
- (2) Install gear reducer (TM 5-3820-210-20/1).



A—UPPER END BEARING MOUNTING
B—REMOVING FLIGHT SHAFT ASSEMBLY

Figure 12. Flight shaft, removal and installation.

- (3) Install classifier unit in main frame (par. 17).
- (4) Install the hopper (par. 27).
- (5) Install electric motor (TM 5-3820-210-20/1).



EMC 5-3820-210-35/1/13

Nut, hex hd 7/8" (8 rqr)
 Washer, lock 7/8" (8 rqr)
 Bolt, machine 7/8" x 3-3/4" (8 rqr)
 Shaft, upper stub
 Nut, hex hd 7/8" (8 rqr)

6 Washer, lock 7/8" (8 rqr)
 7 Bolt, machine 7/8" x 3-3/4" (8 rqr)
 8 Shaft, lower stub
 9 Pipe, conveyor

Figure 13. Upper and lower stub shafts, removal and installation.

Wash Box

General. The wash box is fabricated of steel members welded into one assembly. The wash box being the structural center of classifier.

Removal.

- (1) Remove the classifier unit from the main frame (par. 17).
- (2) Remove the electric motor (TM 5-3820-210-20/1).
- (3) Remove the gear reducer (TM 5-3820-210-20/1).
- (4) Remove the flight shaft assembly (par. 28).
- (5) Remove the hopper (par. 27).

c. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect the wash box for cracks, breaks and other damage.
- (3) Repair cracks and breaks in wash box by welding.
- (4) Inspect all mounting hardware for stripped threads and general condition. Replace damaged or defective parts.

30. Flume and Flume Extensions

a. Removal. Remove the flume at the lower end of the classifier as shown by figure 14.

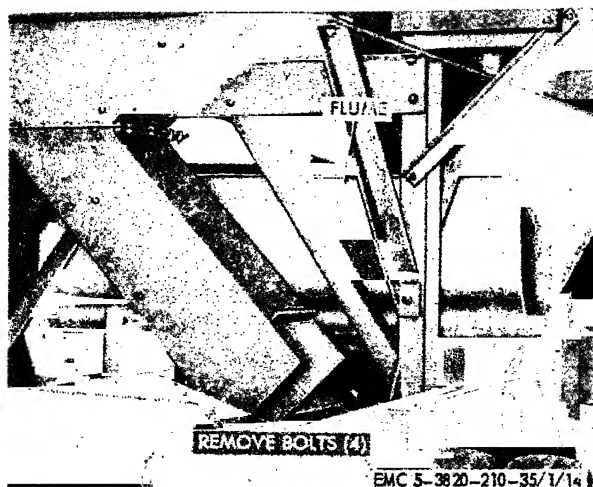


Figure 14. Flume, removal and installation.

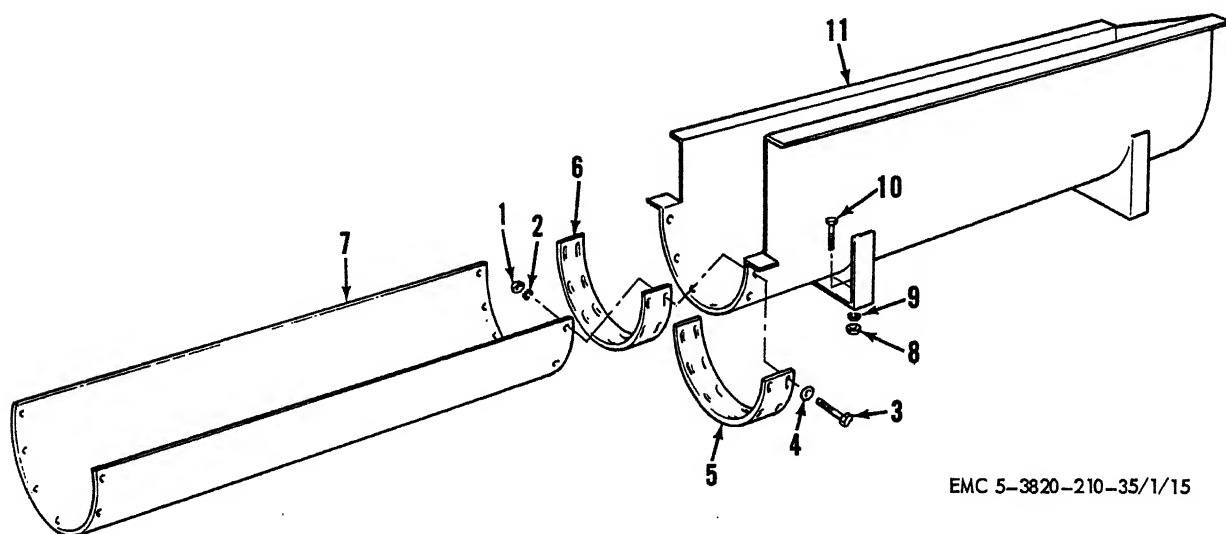
b. *Disassembly.* Disassemble flume and extensions as shown in figure 15.

c. *Cleaning and Inspection.*

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for cracks, breaks and other damage. Repair or replace damaged or defective parts.

d. *Reassembly.* Reassemble flume and extensions as shown in figure 15.

e. *Installation.* Install flume as shown in figure 14.



EMC 5-3820-210-35/1/15

- | | |
|------------------------------------|------------------------------------|
| 1 Nut, hex hd, 3/8" (120 rqr) | 7 Extension, flume (10 rqr) |
| 2 Washer, lock 3/8" (120 rqr) | 8 Nut, hex hd 1/2" (4 rqr) |
| 3 Screw, cap, 3/8 x 7/8" (120 rqr) | 9 Washer, lock, 1/2" (4 rqr) |
| 4 Washer, flat, 3/8" (120 rqr) | 10 Screw, cap, 1/2 x 1-1/2 (4 rqr) |
| 5 Bracket (10 rqr) | 11 Flume |
| 6 Seal (10 rqr) | |

Figure 15. Flume and flume extension, exploded view.

Section IV. BEARINGS

31. Scrubber Trunnion Roller Shaft Bearings

a. *Removal and Disassembly.*

- (1) Remove the roller shaft assemblies (par. 20).

- (2) Remove and disassemble the bearings by reversing the procedures shown in figure 16.

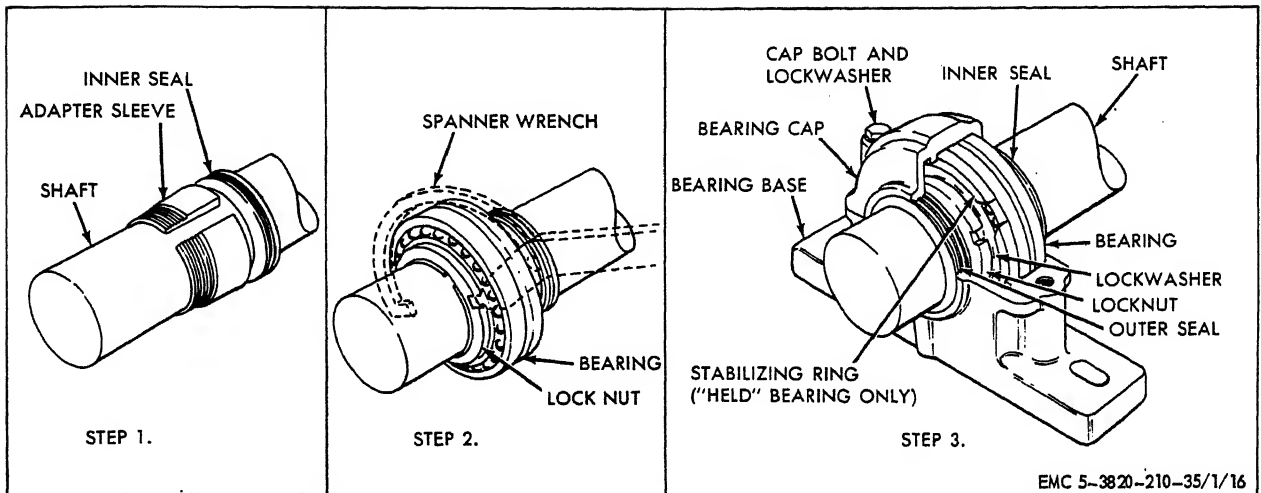


Figure 16. Scrubber trunnion roller shaft bearing, removal, disassembly, reassembly, and installation.

b. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect bearing for the following types of defects:
 - (a) Broken or cracked seal rings or stabilizer ring.
 - (b) Broken, cracked, or scored rollers in bearing.
 - (c) Flaked or pitted areas or raceways of bearing.
 - (d) Damaged threads or defect in adapter or locknut.
 - (e) Cracked or broken housing.

- (3) Replace all parts found to be damaged or defective.

c. Reassembly and Installation.

- (1) Slide inner seal on shaft. Position adapter sleeve on shaft, with threads outboard as shown, to approximate location with respect to required bearing centerline.
- (2) Mount bearing on adapter sleeve, with large bore of inner ring to match taper of the adapter. With bearing hand tight on adapter locate bearing to the proper position on the shaft. (Do not apply lockwasher at this time because drive up procedure may damage lockwasher). Apply the locknut with the chamfered face toward the bearing. Hand tighten the nut

with a spanner wrench until the nut has been moved $1/8$ turn. To insure that nut is not too tight, make certain the bearing rotates easily.

- (3) Remove locknut and install lockwasher on adapter sleeve with inner prong of lockwasher toward face of the bearing and engage in slot of adapter sleeve. Install locknut and tighten. (Do not drive bearing further up the taper). Find lockwasher tang that is nearest a locknut slot. If slot is lightly past tang, do not loosen nut, but tighten to meet a washer tang. Install outer seal on shaft. Position bearing base under shaft and bearing guiding seals into seal grooves. Bolt "held" bearing base in place. Insert stabilizing ring between "held" bearing outer ring and housing shoulder on the locknut side of the bearing. All other bearings on a shaft are centered in their housing seats and do not require stabilizing ring.

Note. There must be only one "held" bearing per shaft. Other bearings must be "free", to permit shaft expansion. Place bearing cap in place and secure with cap bolts and lockwashers.

Note. Caps and bases are not interchangeable. Each cap and base must be assembled with its mating part.

d. Install the roller shaft assemblies (par. 20).

32. Classifier Upper Bearing

a. Removal and Disassembly.

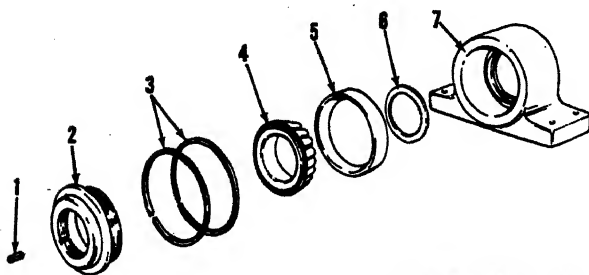
- (1) Remove gear reducer (TM 5-3820-210-20/1).
- (2) Support upper end of flight shaft assembly with blocking or lifting device.
- (3) Remove the bearing mounting bolts as shown in A, figure 12.
- (4) Disassemble and remove bearing from stub shaft in numerical sequence as shown in figure 17.

b. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect the bearing for the following type of defects:
 - (a) Broken or cracked seal rings.
 - (b) Worn or damaged grease seal.
 - (c) Broken, cracked, or scored rollers.
 - (d) Flaked or pitted areas on raceways.
 - (e) Damaged threads or defect in thrust nut or keys.
 - (f) Cracked or broken housing.

c. Reassembly and Installation.

- (1) Reassemble and install bearing on stub shaft in reverse order of numerical sequence shown in figure 17.



EMC 5-3820-210-35/1/17

- 1 Key, thrust nut
- 2 Nut, thrust
- 3 Seal, piston ring (2 rqr)
- 4 Bearing
- 5 Cup, bearing
- 6 Retainer, oil
- 7 Housing, bearing

Figure 17. Classifier upper bearing, exploded view.

- (2) Install bearing mounting bolts as shown in A, figure 12.
- (3) Remove support from upper end of flight shaft assembly.
- (4) Install gear reducer (TM 5-3820-210-20/1).

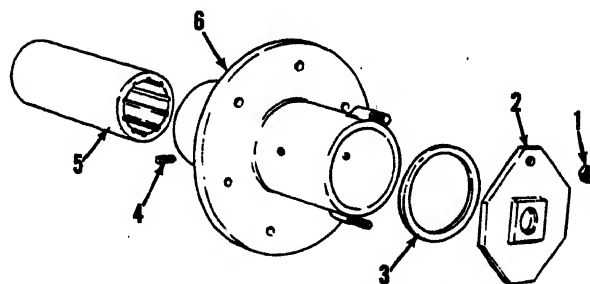
33. Classifier Lower Bearing

a. Removal and Disassembly.

- (1) Remove water piping to lower bearing housing (TM 5-3820-210-20/1).
- (2) Support lower end of flight shaft assembly with blocking or lifting device.
- (3) Remove the bearing mounting bolts as shown in B, figure 12.
- (4) Disassemble and remove bearing from stub shaft in numerical sequence as shown in figure 18.

b. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect bearing box for cracks or breaks. Repair or replace a damaged bearing box.
- (3) Inspect the bearing for cracks, breaks or other damage. Replace a damaged or defective bearing.
- (4) Inspect mounting hardware and piping for damaged threads and general condition. Replace damaged or defective parts.



EMC 5-3820-210-35/1/18

- 1 Nut
- 2 Cover
- 3 Gasket
- 4 Setscrew
- 5 Cutless Rubber Bearing
- 6 Housing

Figure 18. Classifier lower bearing, exploded view.

c. Reassembly and Installation.

- (1) Reassemble and install bearing on stub shaft in reverse order of numerical sequence shown in figure 18.
- (2) Install bearing mounting bolts as shown B, figure 12.

- (3) Remove support from lower end of flight shaft assembly.
- (4) Install water piping to lower bearing housing (TM 5-3820-210-20/1).

Section V. GEAR REDUCERS**34. General**

There are two gear reducers used on the washing and screening unit. A concentric shaft, horizontal motor reducer on the scrubber and a torque-arm, shaft mounted, V-belt driven reducer on the classifier.

35. Scrubber Gear Reducer

a. Removal. Remove the gear reducer assembly (TM 5-3820-210-20/1).

b. Disassembly. Disassemble the gear reducer as shown in figure 19. Procedures are as follows:

- (1) Low Speed End Disassembly (A, fig. 20).
 - (a) Drain oil and remove nuts holding low speed assembly to housing and manually pull the assembly from the unit. Do not damage gear teeth.
 - (b) Secure low speed shaft extension with a spanner wrench and remove locknut (5).
 - (c) Apply axial force to gear (2) with a pair of pinch bars and strike end of shaft (6) a sharp blow with a brass hammer. Do not damage gear teeth or shaft threads.
 - (d) Bend back lock plates (3) and remove capscrews (4). Tap off bearing plate (1) with brass hammer.
- (2) High Speed Pinion Disassembly (B, fig. 20).
 - (a) To remove the high speed pinion shaft assembly (2). Remove the retainer (1) and then withdraw the shaft assembly from the high speed end of the unit.

c. Cleaning and Inspection.

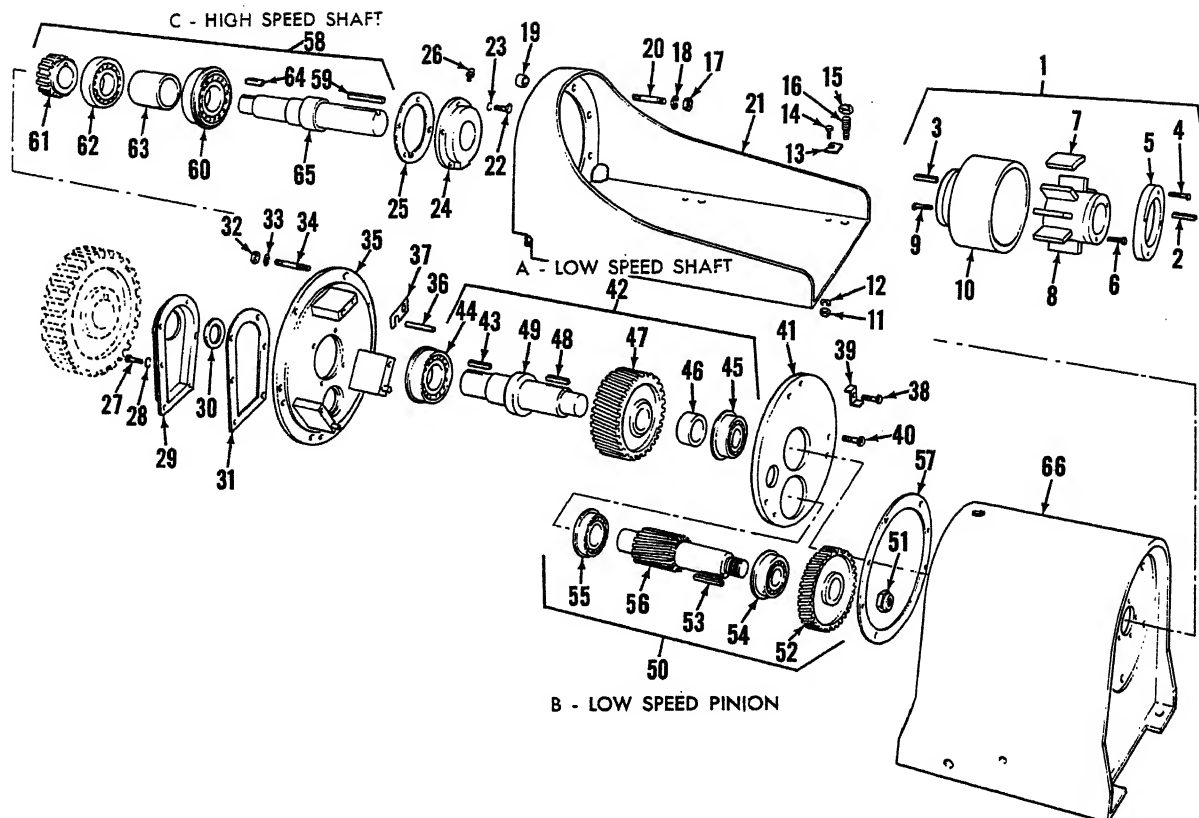
- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.

- (2) Inspect reducer housing for cracks or breaks. Inspect machined surfaces for burrs and nicks. Weld minor cracks. Replace a broken housing.
- (3) Inspect bearing for cracks, breaks, and scoring. Replace a defective bearing.
- (4) Inspect shafts and gears for cracks, breaks or broken teeth. Replace if defective.
- (5) Inspect all hardware for breaks, cracks, or damaged threads. Replace if defective.

d. Reassembly. Reassemble the gear reducer as follows:

- (1) High Speed Pinion. Assemble the gear elements (58, figure 19) into the high speed end plate as shown in B, figure 20.
- (2) Head and Bearing Plate (C, fig. 20).
 - (a) Assemble low speed pinion (8) and low speed shaft gear (6) in head (5) and mount bearing plate (4).
 - (b) Tighten capscrews (2) and then check end float of gear shaft (6) with a dial indicator, as shown. Adjust the end float for 0.000 to 0.002 with shim (7). When end play is correct bend lock plates (3).
 - (c) Mount gear (9) and lock nut (1). Lift low speed assembly into unit and bolt in place. When unit is assembled turn gear train over by hand several times to see that it is running freely.

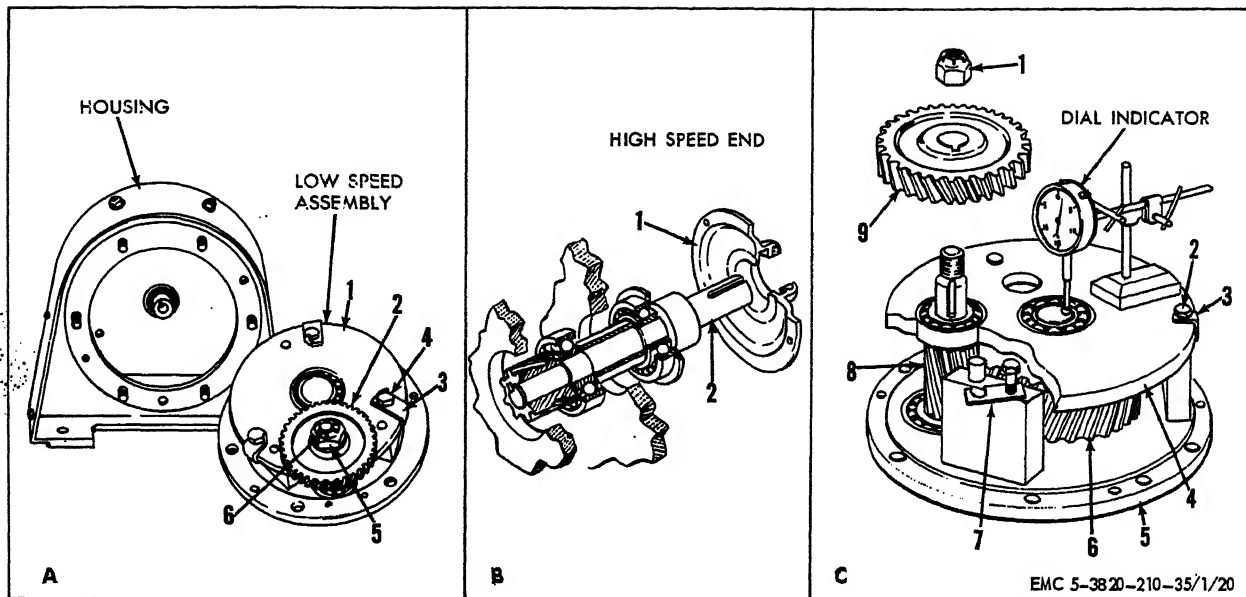
e. Installation. Install the gear reducer assembly (TM 5-3820-210-20/1).



EMC 5-3820-210-35/1/19

- | | | |
|---------------------------|------------------------------|------------------------------|
| 1 Clutch assembly | 23 Washer (4 rqr) | 45 Bearing, inner |
| 2 Key, hub | 24 Retainer, H.S. oil | 46 Spacer |
| 3 Key, hub | 25 Gasket, retainer | 47 Gear |
| 4 Set screw (3 rqr) | 26 Fitting, lube | 48 Key, gear |
| 5 Ring, clutch | 27 Screw, cap (4 rqr) | 49 Shaft, low speed |
| 6 Set screw, hub | 28 Washer (4 rqr) | 50 Low speed pinion assembly |
| 7 Shoe, clutch (3 rqr) | 29 Retainer, L.S., oil | 51 Nut, gear lock |
| 8 Hub, driver | 30 Seal, L.S. oil | 52 Gear |
| 9 Set screw | 31 Gasket, retainer | 53 Key, gear |
| 10 Hub, driven | 32 Nut, hex (6 rqr) | 54 Gear |
| 11 Nut, hex (4 rqr) | 33 Washer, lock (6 rqr) | 55 Bearing, outer |
| 12 Washer, lock (4 rqr) | 34 Stud (6 rqr) | 56 Bearing, inner |
| 13 Shim, motor foot (AsR) | 35 Head | 57 Gasket, head |
| 14 Screw, cap (4 rqr) | 36 Dowel (3 rqr) | 58 High speed shaft |
| 15 Nut, hex (4 rqr) | 37 Shim (AsR) | 59 Key, shaft extension |
| 16 Dowel, screw (4 rqr) | 38 Bolt, hex hd (3 rqr) | 60 Bearing, outer |
| 17 Nut, hex, (6 rqr) | 39 Plate, locking (3 rqr) | 61 Pinion |
| 18 Washer, lock (6 rqr) | 40 Screw, knurled hd (3 rqr) | 62 Bearing, inner |
| 19 Spacer (6 rqr) | 41 Plate, bearing | 63 Spacer |
| 20 Stud (6 rqr) | 42 Low speed shaft assembly | 64 Key, pinion |
| 21 Bracket, motor | 43 Key, shaft extension | 65 Shaft |
| 22 Screw, cap (4 rqr) | 44 Bearing, outer | 66 Housing |

Figure 19. Scrubber gear reducer assembly, exploded view.



- 1 Bearing plate
2 Gear
3 Lock plate (3 rqr)

- 4 Capscrew (3 rqr)
5 Locknut
6 Low speed pinion shaft

A—LOW SPEED END

- 1 Bearing retainer

- 2 High speed shaft

B—HIGH SPEED END

- 1 Lock nut
2 Capscrew (3 rqr)
3 Lock plate (3 rqr)
4 Bearing plate
5 Head

- 6 Low speed shaft gear
7 Shim (AsR)
8 Low speed pinion
9 Gear

C—HEAD AND BEARING PLATE ASSEMBLY

Figure 20. Scrubber gear reducer, disassembly and reassembly.

36. Classifier Gear Reducer

a. Removal. Remove the gear reducer assembly (TM 5-3820-210-20/1).

b. Disassembly. Disassemble the gear reducer in numerical sequence as instructed in figure 21.

Notes.

- (1) The oil seals (18 and 33) are of the rubbing type and considerable care should be used during disassembly and reassembly to avoid damage to the surface which seals rub upon. The keyseat in the input shaft (36) and the holes in the output hub (24) should be covered with scotch tape or paper before disassembly or reassembly. Be careful to remove any burrs or nicks on surfaces of input shaft and output hub before disassembly or reassembly.

- (2) Remove all bolts (9 and 11) from housing (16 and 38). Open housing evenly to prevent damage to parts inside. Lift shaft, gear and bearing assemblies from housing.

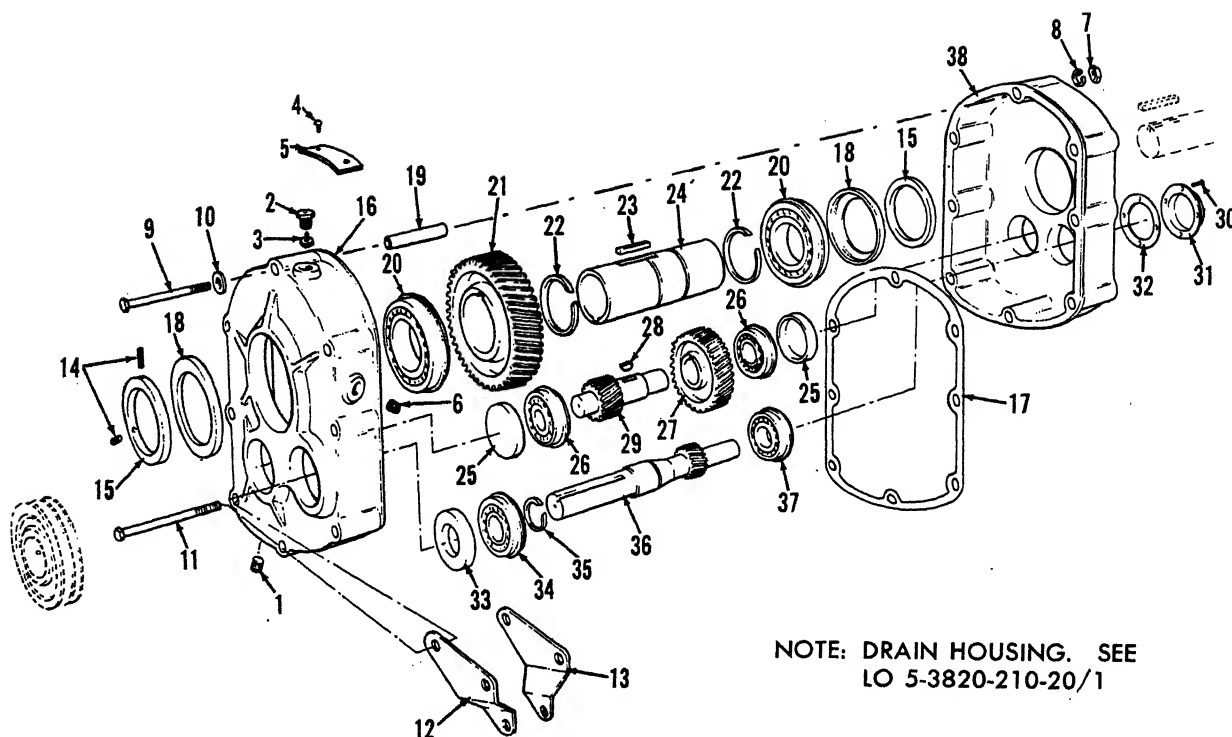
c. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
(2) Inspect all parts and replace or repair all defective or damaged parts.

d. Reassembly. Reassemble the gear reducer assembly in the reverse order of the numerical sequence illustrated in figure 21.

Notes.

- (1) *Out put Hub Assembly:* Heat gear (21) to 325 to 350° F. to shrink onto hub (24). Heat bearings (20) in oil 270° to 290° F. to shrink onto hub (24).



NOTE: DRAIN HOUSING. SEE
LO 5-3820-210-20/1

EMC 5-3820-210-35/1/21

- | | | |
|----------------------------------|--|----------------------------------|
| 1 Plug, magnetic | 14 Screw, set, output hub collar (4 rqr) | 27 Gear, 1st reduction |
| 2 Vent, air | 15 Collar, output hub (2 rqr) | 28 Key, gear |
| 3 Baffle, air vent | 16 Housing, LH | 29 Pinion, countershaft |
| 4 Screw, drive (2 rqr) | 17 Gasket, housing | 30 Screw, backstop cover (4 rqr) |
| 5 Plate, name and lube | 18 Seal, oil (2 rqr) | 31 Cover, backstop |
| 6 Plug, socket head pipe (2 rqr) | 19 Pin, dowel (2 rqr) | 32 Gasket, backstop cover |
| 7 Nut, housing (8 rqr) | 20 Bearing, output hub (2 rqr) | 33 Seal, input shaft oil |
| 8 Washer, lock (8 rqr) | 21 Gear, 2nd reduction | 34 Bearing, input, shaft end |
| 9 Screw, housing cap (6 rqr) | 22 Ring, snap (2 rqr) | 35 Ring, snap |
| 10 Washer, plain housing (2 rqr) | 23 Key, gear | 36 Pinion, input |
| 11 Screw, housing cap (2 rqr) | 24 Hub, output | 37 Bearing, input, backstop end |
| 12 Adapter, LH, torque-arm | 25 Cover, countershaft brg. (2 rqr) | 38 Housing, RH |
| 13 Adapter, RH, torque-arm | 26 Bearing, countershaft (2 rqr) | |

Figure 21. Classifier gear reducer assembly, exploded view.

- (2) **Countershaft Assembly:** Shaft and pinion (29) are integral. Press gear (27) and bearings (26) on shaft. Press against inner (not outer) race of bearings.
- (3) **Input Shaft Assembly:** Shaft and pinion (36) are integral. Press bearings (34 and 37) on shaft. Press against inner (not outer) race of bearings.
- (4) Place right half of housing (38) on blocks to allow clearance for protruding end of output hub (24). Mesh output hub assembly and countershaft assembly together and place in housing half. Place input shaft assembly in

housing half. Tap lightly with a rawhide hammer (not lead hammer) until bearings are properly seated in the housing. Make sure the snap rings on the O.D. of the bearings come in to contact with the housing.

- (5) Place a new housing gasket (17) on the housing half. Place other half of housing into position and tap with a soft hammer until the housing bolts (9 and 11) can be used to draw the halves together. Draw halves together evenly to prevent damage to parts.

e. Installation. Install the gear reducer (TM 5-3820-210-20/1).

Section VI. ELECTRICAL SYSTEM

37. General

The electrical components covered in this section are the electric motors, motor supports, magnetic starters, electrical wiring, power cable, and power cable receptacles.

38. Electric Motors

a. Removal. Remove the electric motor assemblies (TM 5-3820-210-20/1).

b. Disassembly. Disassemble the motor assembly in numerical sequence as shown in figure 22.

c. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for wear or damage and replace worn or defective parts. Refer to TM 5-764 for repair of motor assembly.

d. Reassembly. Reassemble the motor assembly in reverse order of the numerical sequence illustrated in figure 22.

e. Installation. Install the motor assembly (TM 5-3820-210-20/1).

39. Motor Supports

a. General. The motor support of the classifier is an integral part of the washbox frame. The motor for the scrubber bolts to, and is supported by the gear reducer. The motor support of the vibrating screen is a separate component and bolts to the screen base frame.

b. Removal.

- (1) Remove the electric motor assembly, (TM 5-3820-210-20/1).
- (2) Remove the motor support as shown in figure 23.

c. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect for cracks, breaks, or damaged parts. Repair or replace damaged parts.
- (3) Inspect all hardware for cracks, breaks, defective threads, and other damage. Replace a defective part.

d. Installation.

- (1) Install motor support as shown in figure 23.
- (2) Install electric motor assembly (TM 5-3820-210-20/1).

40. Magnetic Starters

a. Removal. Remove the magnetic starter (TM 5-3820-210-20/1).

b. Disassembly. Disassemble the magnetic starter in numerical sequence as shown in figure 24.

c. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for defects and damage. Replace or repair all defective or damaged parts.

d. Reassembly. Reassemble the magnetic starter in the reverse order of the numerical sequence shown in figure 24.

e. Installation. Install the magnetic starter (TM 5-3820-210-20/1).

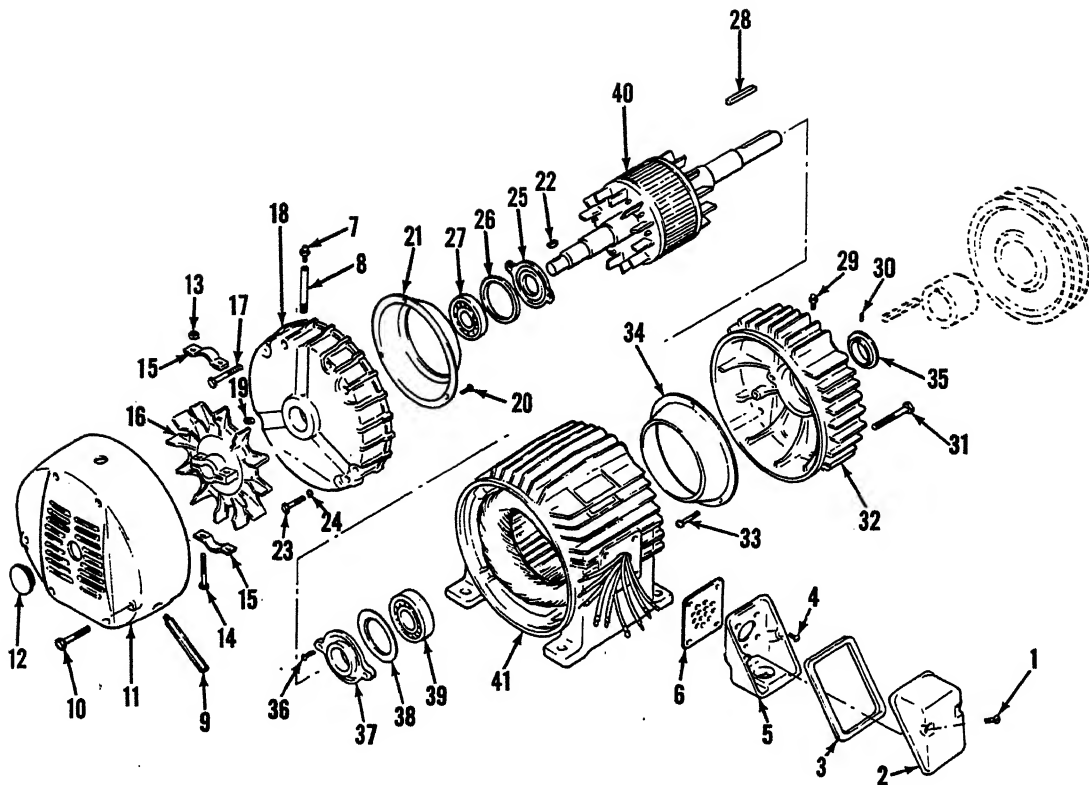
41. Wiring, Plugs, and Receptacles

a. Removal. Remove the wiring, plugs, and receptacles as shown in figure 25.

b. Cleaning and Inspection.

- (1) Inspect conduit and electrical leads, cables and wires for cracks, wear, and corrosion at the terminals. Wipe with a cloth dampened with an approved cleaning solvent and dry thoroughly. Inspect for worn, cracked, frayed or oil-soaked insulation and replace defective parts.
- (2) Clean plugs and receptacles with an approved cleaning solvent and dry thoroughly. Inspect for cracks, wear, and corrosion paying special attention to contact terminals and insulators. Replace damaged or defective parts.

b. Installation. Install all wiring, plugs, and receptacles as shown in figure 25.



EMC 5-3820-210-35/1/22

- | | |
|-----------------------------|---------------------------------|
| 1 Screw, R.H. (2 rqr) | 22 Key, fan |
| 2 Cover, conduit box | 23 Screw, bearing cap (2 rqr) |
| 3 Gasket | 24 Washer, lock (2 rqr) |
| 4 Screw, P.H. (4 rqr) | 25 Cap, inner bearing |
| 5 Box, conduit | 26 Gasket, bearing cap |
| 6 Gasket | 27 Bearing (opposite drive end) |
| 7 Fitting, grease (2 rqr) | 28 Key, shaft |
| 8 Pipe, grease | 29 Fitting, grease (2 rqr) |
| 9 Plug, drain | 30 Setscrew |
| 10 Bolt, fan cover (4 rqr) | 31 Bolt, end shield (4 rqr) |
| 11 Casing, fan | 32 Shield, end |
| 12 Cap, monogram dust | 33 Screw, air deflector (3 rqr) |
| 13 Nut, hex (2 rqr) | 34 Deflector, air |
| 14 Screw, hex cap (2 rqr) | 35 Seal, drive end |
| 15 Bracket, fan (2 rqr) | 36 Screw, bearing cap (2 rqr) |
| 16 Fan | 37 Cap, inner bearing |
| 17 Bolt, end shield (4 rqr) | 38 Gasket, bearing cap |
| 18 Shield, end | 39 Bearing, drive end |
| 19 Plug, pipe (2 rqr) | 40 Rotor |
| 20 Screw, air deflector | 41 Stator |
| 21 Deflector, air | |

10 H.P. Electric motor (Scrubber and Classifier)

15 H.P. Electric motor (Screen)

Figure 22. Electric motor, exploded view.

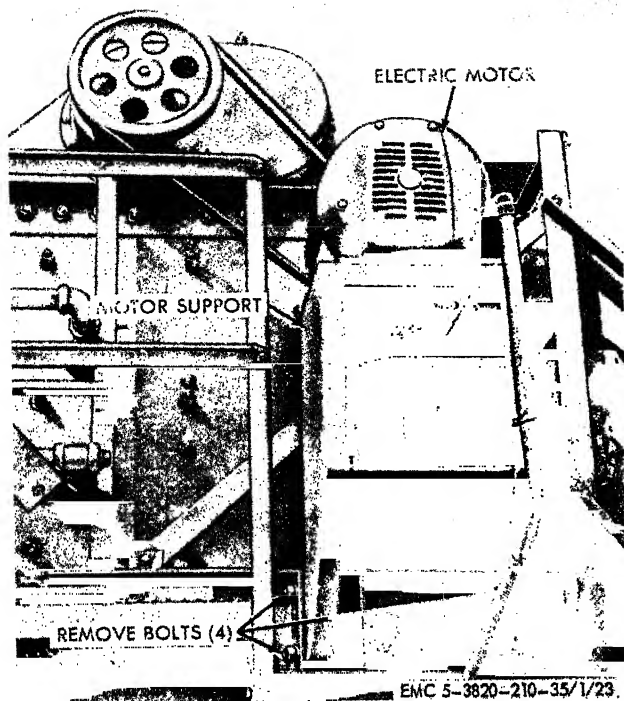


Figure 23. Vibrating screen motor support, removal and installation.

42. Power Cable

a. Removal. Remove power cable from reel (TM 5-3820-210-10/1).

b. Cleaning and Inspection. Wipe with a cloth dampened with an approved cleaning

solvent and dry thoroughly. Inspect for cracked, frayed or oil-soaked insulation and burnt or corroded contact terminals. Replace or repair a damaged or defective power cable.

c. Installation. Install power cable on cable reel (TM 5-3820-210-10/1).

43. Power Receptacles

a. Removal. Remove power receptacles as shown in figure 26.

b. Disassembly. Disassemble power receptacles in numerical sequence as shown in figure 27.

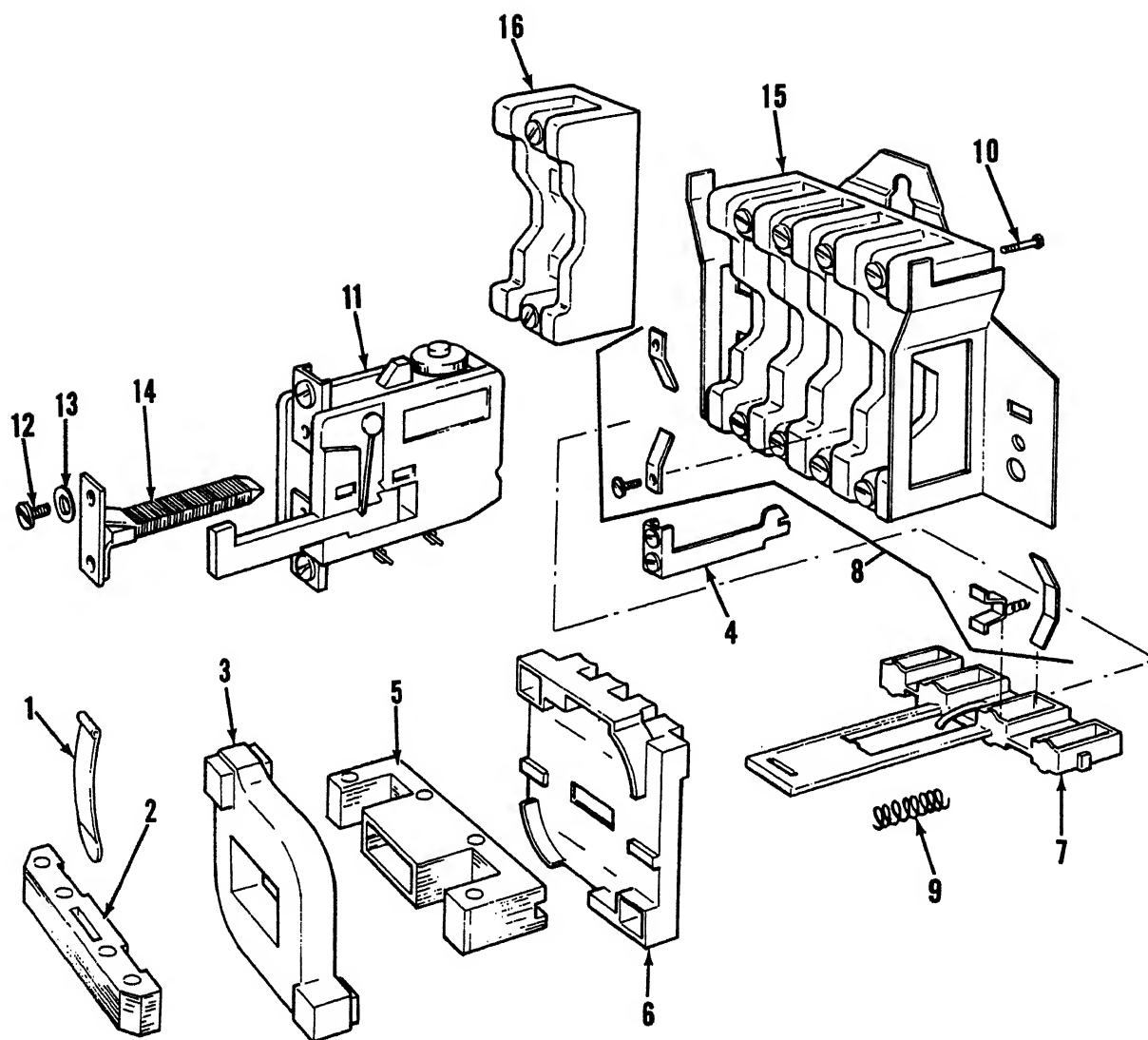
c. Cleaning and Inspection.

(1) Wipe with a cloth dampened with an approved cleaning solvent and dry thoroughly. Inspect electrical leads for worn, cracked, frayed or oil-soaked insulation and replace defective parts.

(2) Inspect receptacle housing and inserts for cracks, wear, and corrosion paying special attention to contact terminals and insulators. Replace damaged or defective parts.

d. Reassembly. Reassemble power receptacles in the reverse order of the numerical sequence shown in figure 27.

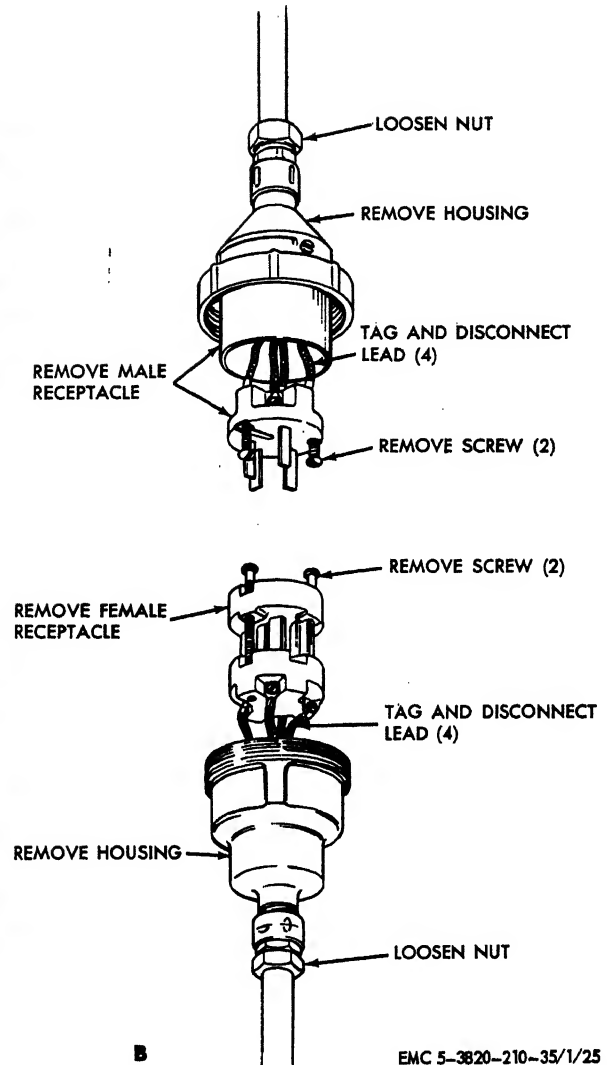
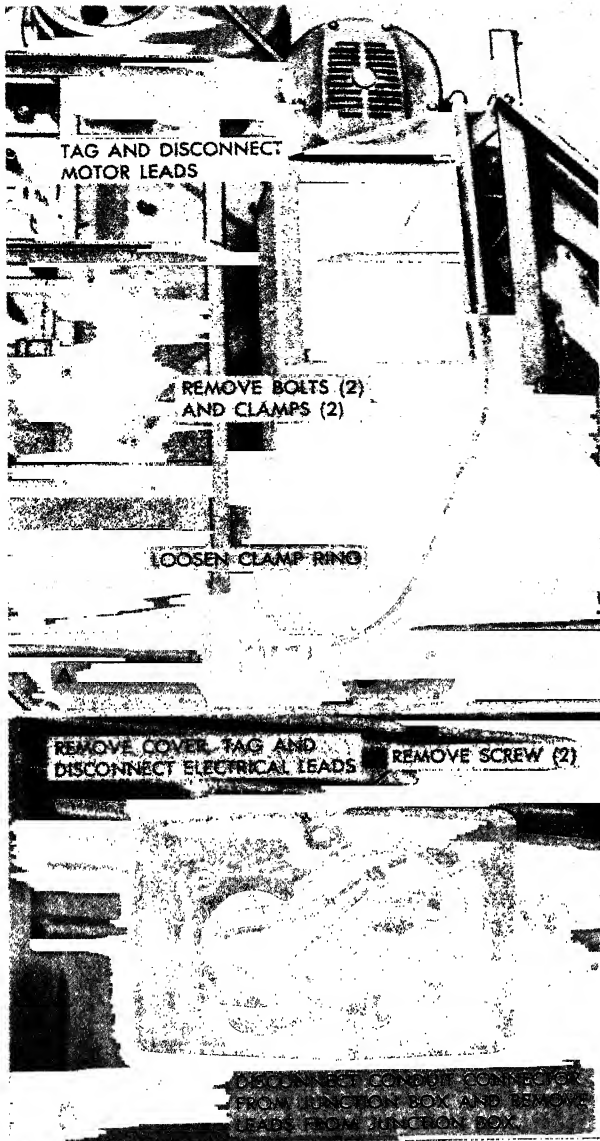
e. Installation. Install power receptacles as shown in figure 26.



EMC 5-3820-210-35/1/24

- | | |
|----------------------------|---|
| 1 Clip, spring | 9 Spring, contact support return |
| 2 Magnet, frame | 10 Screw, overload relay mounting (2 rqr) |
| 3 Coil, operating | 11 Relay, overload (2 rqr) |
| 4 Retainer, coil (2 rqr) | 12 Screw, heater unit (4 rqr) |
| 5 Magnet, armature | 13 Washer, IT-ET (4 rqr) |
| 6 Cover, molded contact | 14 Unit, heater (2 rqr) |
| 7 Support, movable contact | 15 Contactor |
| 8 Contact set with spring | 16 Auxiliary contactor |

Figure 24. Magnetic starter, exploded view.



EMC 5-3820-210-35/1/25

A—Plug, Receptacle, and Conduit, Removal and Installation.

B—Plug and Receptacle, Partially Exploded View.

C—Motor Leads, Removal and Installation.

Figure 25. Wiring, Plugs, and Receptacles, removal and installation.

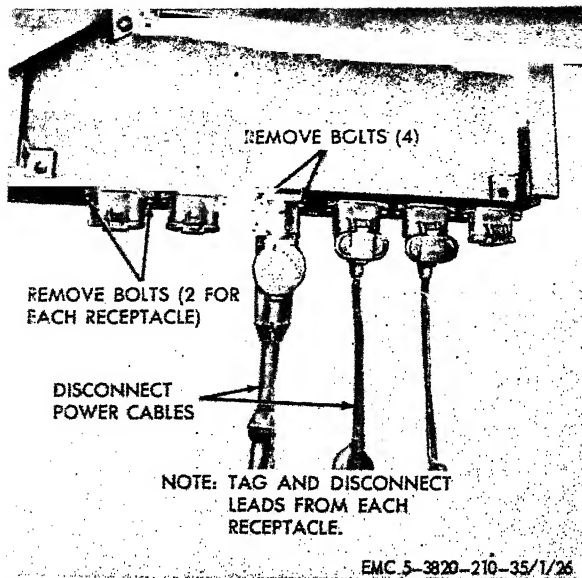
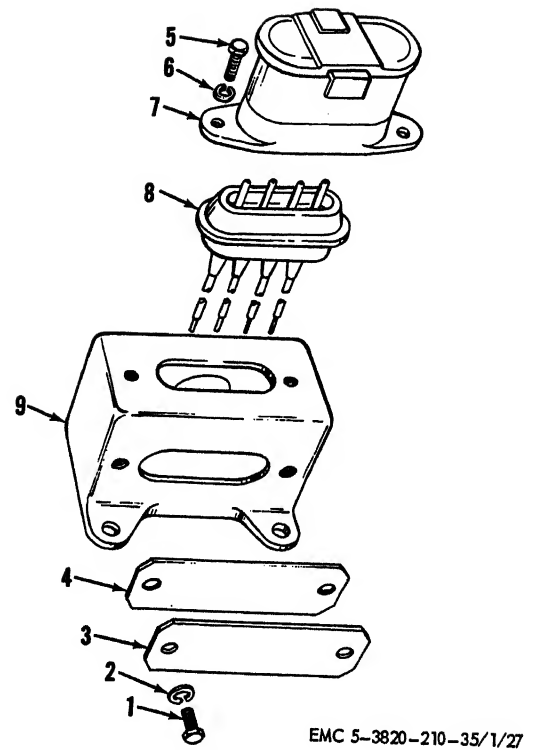


Figure 26. Power receptacles, removal and installation.



- 1 Screw, hex hd (2 rqr)
- 2 Washer, lock (2 rqr)
- 3 Plate, cover
- 4 Gasket, cover plate
- 5 Screw, hex hd (2 rqr)
- 6 Washer, lock (2 rqr)
- 7 Shell, mounting
- 8 Insert, male
- 9 Base

Figure 27. Power receptacle, exploded view.

Section VII. MAIN FRAME

44. General

The main frame is fabricated from steel members welded into one assembly. The main frame being the structural center of the washing screening unit, supports the classifier vibrating screen, and scrubber.

45. Main Frame Removal

- a. Remove the scrubber assembly (TM 5-3820-210-10/1).
- b. Remove the vibrating screen assembly. (TM 5-3820-210-10/1)

c. Remove the classifier unit (par. 17).

d. Remove the rear axle (TM 5-3820-210-20/1).

e. Remove leveling jacks (TM 5-3820-210-20/1).

46. Cleaning, Inspection, and Repair

a. Clean the main frame with an approved cleaning solvent and dry thoroughly.

b. Inspect the frame for cracks, breaks, and other damage.

- c. Repair cracks and breaks in the frame assembly by welding.
- d. Replace a badly damaged frame.

47. Main Frame Installation

- a. Install the leveling jack (TM 5-3820-210-20/1).

- b. Install the rear axle (TM 5-3820-210-20/1).

- c. Install the classifier unit (par. 17).
- d. Install the vibrating screen assembly (TM 5-3820-210-10/1).
- e. Install the scrubber assembly (TM 5-3820-210-10/1).

Section VIII. BRAKE ASSEMBLY AND RELAY VALVE

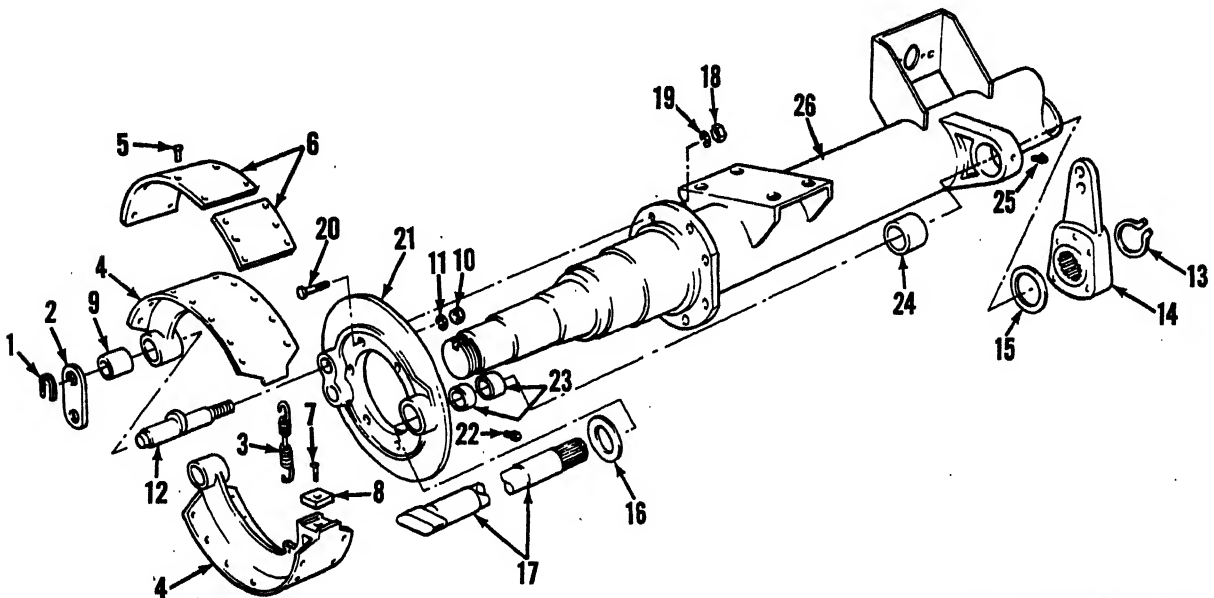
48. Description

The rear axle brakes are air actuated and each brake has two shoes. The air brake chamber connected to an S-type constant lift cam forged integrally with the shaft actuates the shoes. The air tank reservoir and relay valve provide reserve air and distribution to the air brake chambers.

49. Brake Assembly

- a. *Removal.* Remove the brake assembly (TM 5-3820-210-20/1).

- b. *Disassembly.* Disassemble the brake assembly in numerical sequence as shown in figure 28.



EMC 5-3820-210-35/1/28

- | | | |
|------------------------------|--------------------------------|--------------------------------------|
| 1 "C" washer (4 rqr) | 10 Nut, anchor pin hex (4 rqr) | 19 Washer, lock (16 rqr) |
| 2 Strap, anchor pin (2 rqr) | 11 Washer, lock (4 rqr) | 20 Bolt, brake spider (16 rqr) |
| 3 Spring, return (4 rqr) | 12 Pin, anchor (4 rqr) | 21 Spider, brake (2 rqr) |
| 4 Shoe, brake (4 rqr) | 13 Ring, lock (2 rqr) | 22 Fitting, grease (2 rqr) |
| 5 Rivet, lining (56 rqr) | 14 Adjuster, slack, (2 rqr) | 23 Bushing, brake spider (4 rqr) |
| 6 Lining, brake (2 sets rqr) | 15 Washer, spacing (UAR) | 24 Bushing, camshaft bracket (2 rqr) |
| 7 Screw, camplate (4 rqr) | 16 Washer (2 rqr) | 25 Fitting, grease (2 rqr) |
| 8 Camplate (4 rqr) | 17 Camshaft, brake (1 RH-1 LH) | 26 Axle member |
| 9 Bushing (4 rqr) | 18 Nut, hex (16 rqr) | |

Figure 28. Brake assembly, exploded view.

c. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect all parts for wear or damage. Replace or repair a worn or damaged part.

d. Reassembly. Reassemble the brake assembly in the reverse order of the numerical sequence shown in figure 28.

e. Installation. Install the brake assembly. (TM 5-3820-210-20/1).

50. Relay Valve

a. Removal. Remove the relay valve (TM 5-3820-210-20/1).

b. Disassembly. Disassemble the relay valve in numerical sequence as shown in figure 29.

Notes.

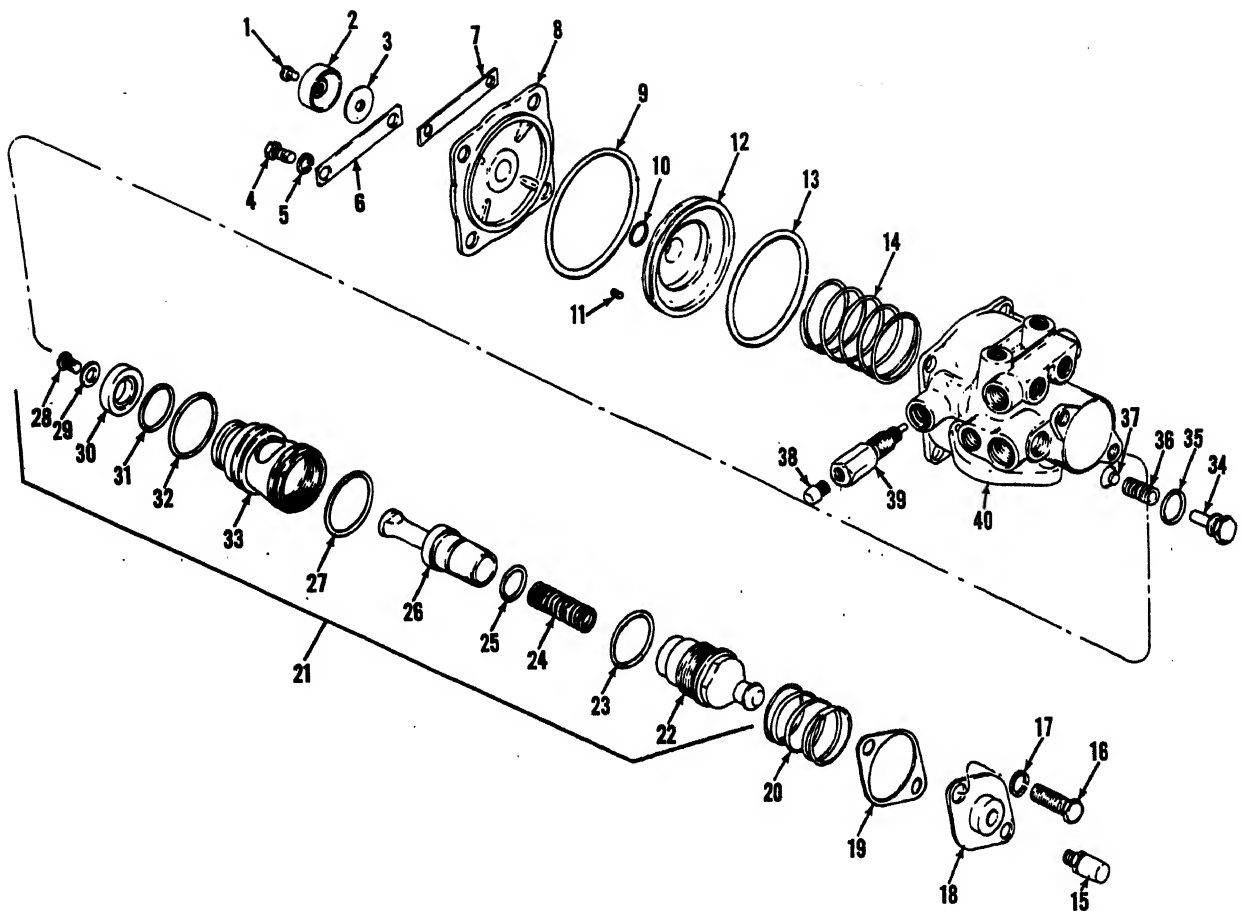
- (1) When removing the emergency piston and valves assembly (21) keep this sub-assembly centered in body (40) of the valve to avoid damage to exhaust valve (30).
 - (2) Using wrench flats provided remove emergency piston cap nut (22) from emergency piston (33). Use care in handling the parts of this sub-assembly to avoid damaging or distorting finished diameters. Remove valve springs (24) and emergency piston cap nut grommet (25).
 - (3) Remove screw (28), washer (29), exhaust valve (30) and exhaust valve packing (31) from inlet valve body (26). Remove inlet valve body (26) from emergency piston (33). Continue disassembly following the numerical sequence.
- c. Cleaning and Inspection.*
- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
 - (2) Inspect all parts for wear or damage. Replace or repair a worn or defective part.

d. Reassembly. Reassemble the relay valve in the reverse order of the numerical sequence shown in figure 29.

Notes.

- (1) Before reassembly, lubricate lightly the following surfaces with a molybdenum disulphide lubricant, FSN 9150-390-5690:
 - (a) Quad ring (13) and its groove on relay piston (12). All grommets and their corresponding grooves.
 - (b) Emergency piston (33), inlet valve body (26), emergency piston capnut (22), relay piston (12) and their corresponding bores.
 - (c) Check valve (39) and its bore in body (40).
- (2) Preassemble emergency piston and valve assembly (21) as follows: Use care in handling these parts to avoid damage to finished diameters. Use wrench surfaces provided.
 - (a) Install three grommets (23, 27, and 32) on emergency piston (33).
 - (b) Install valve spring (24) in inlet valve body (26) and slide inlet valve body into the emergency piston cap nut (22) using care to avoid damaging inlet valve grommet (25).
 - (c) Install emergency piston cap nut (22) in emergency piston (33) and tighten.
 - (d) Install exhaust valve packing (31) on inlet valve body (26). Install exhaust valve (30) on inlet valve body using washer (29) and screw (28). (Beads on rubber and recess in valve surface should face head of screw). Tighten screw using flats on inlet valve body to hold body.
 - (e) Install emergency piston and valve assembly (21) in valve body (40). Continue reassembly following in reverse order of numerical sequence.

e. Installation. Install the relay valve (TM 5-3820-210-20/1).



EMC 5-3820-210-35/1/29

- | | |
|--|--|
| 1 Screw, mach. #10-24 x 1/2 in. | 21 Emergency piston and valve assembly |
| 2 Cover | 22 Capnut |
| 3 Diaphragm | 23 Grommet |
| 4 Bolt, mach. 5/16-18 x 3/4 in. (4 rqr) | 24 Valve spring |
| 5 Washer, lock, 5/16 in (4 rqr) | 25 Grommet |
| 6 Instruction tag | 26 Inlet valve |
| 7 Identification tag | 27 Grommet |
| 8 Cover | 28 Screw, mach. 5/16-18 x 1/2 in. |
| 9 Grommet | 29 Washer, flat, 5/16 |
| 10 Grommet | 30 Exhaust valve |
| 11 Pipe plug assembly | 31 Preformed packing |
| 12 Relay piston | 32 Grommet |
| 13 Quad ring | 33 Piston |
| 14 Spring | 34 Screw, special |
| 15 Breather valve assembly | 35 Grommet |
| 16 Bolt, mach. 5/16-18 x 3/4 in. (2 rqr) | 36 Spring |
| 17 Washer, lock, 5/16 in (2 rqr) | 37 Check valve |
| 18 Cover plate | 38 Breather valve assembly |
| 19 Gasket | 39 Check valve |
| 20 Spring | 40 Body |

Figure 29. Relay valve, exploded view.

Section IX. FIFTH WHEEL

51. Description

The fifth wheel assembly mounted on the towing dolly consists of the fifth wheel plate, king pin locking jaws, jaw operating mechanism and mounting hardware.

52. Removal

Remove the fifth wheel as shown in figure 30.

53. Disassembly

Disassemble the fifth wheel in numerical sequence as shown in figure 31.

54. Cleaning Inspection and Repair

a. Clean all parts with an approved cleaning solvent and dry thoroughly.

b. Inspect all parts for wear or damage. Replace or repair a worn or defective part.

55. Reassembly

Reassemble the fifth wheel in the reverse order of the numerical sequence shown in figure 31.

56. Installation

Install the fifth wheel as shown in figure 30.

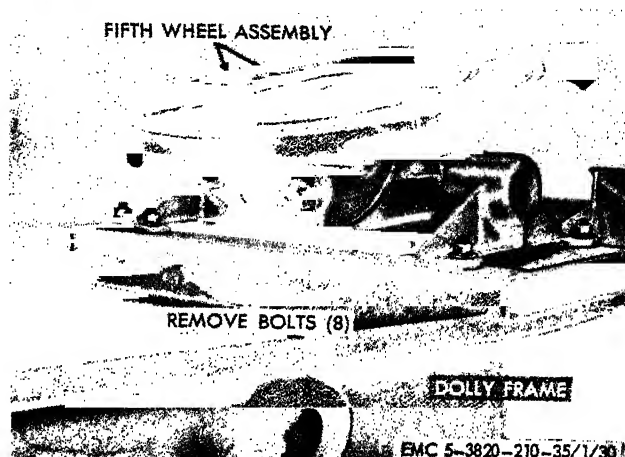
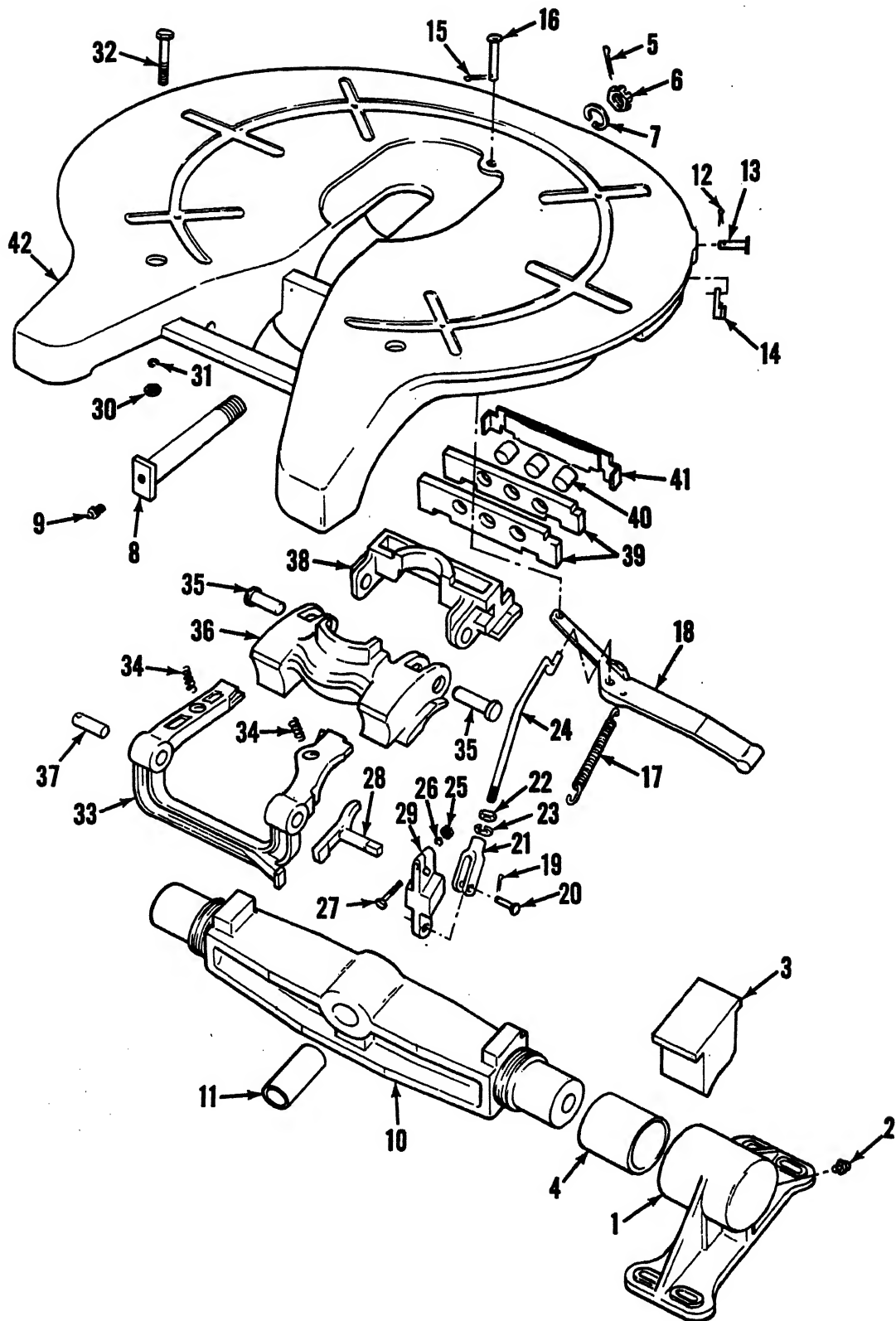


Figure 30. Fifth wheel, removal and installation.



EMC 5-3820-210-35/1/31

Figure 31. Fifth wheel, exploded view.

TM 5-3820-210-35/1

- | | |
|--------------------------------|------------------------------------|
| 1 Bracket, frame (2 rqr) | 22 Nut, hex, 5/8 in. |
| 2 Fitting, alemite (2 rqr) | 23 Washer, lock, 5/8 in. |
| 3 Rubber, stabilizer (2 rqr) | 24 Rod, operating |
| 4 Bushing, bracket (2 rqr) | 25 Nut, hex |
| 5 Pin, cotter, 3/8 x 3-1/2 in. | 26 Washer, lock |
| 6 Nut, slotted hex, 1-3/4 in. | 27 Bolt, operating lever |
| 7 Washer, lock, 1-3/4 in. | 28 Cam |
| 8 Pin, support beam | 29 Lever, operating |
| 9 Fitting, alemite | 30 Nut, hex, lock pin bolt (2 rqr) |
| 10 Beam, support | 31 Washer, lock (2 rqr) |
| 11 Bushing, beam | 32 Bolt, lock pin (2 rqr) |
| 12 Pin, cotter | 33 Lock |
| 13 Pin, safety latch | 34 Spring, lock (2 rqr) |
| 14 Latch, safety | 35 Pin, jaw hinge (2 rqr) |
| 15 Pin, cotter | 36 Jaw, rear |
| 16 Pin, side operating lever | 37 Pin, lock (2 rqr) |
| 17 Spring, lever | 38 Jaw, front |
| 18 Lever, side operating | 39 Rubber, front buffing (2 rqr) |
| 19 Pin, cotter | 40 Plug, limit compression (3 rqr) |
| 20 Pin, clevis | 41 Plate, buffing rubber backing |
| 21 Clevis | 42 Plate, fifth wheel |

Figure 31—Continued.

Section X. LEVELING JACKS

57. Description

The leveling jacks mounted underneath the screening unit main frame provide a means of stabilizing and leveling the unit for operation. The leveling jacks consist of a screw type jack, mounted and hinged, to the bottom of the main frame.

58. Removal

Remove the leveling jacks (TM 5-3820-210-20/1).

59. Disassembly

Disassemble the leveling jacks in numerical sequence as shown in figure 32.

60. Cleaning, Inspection, and Repair

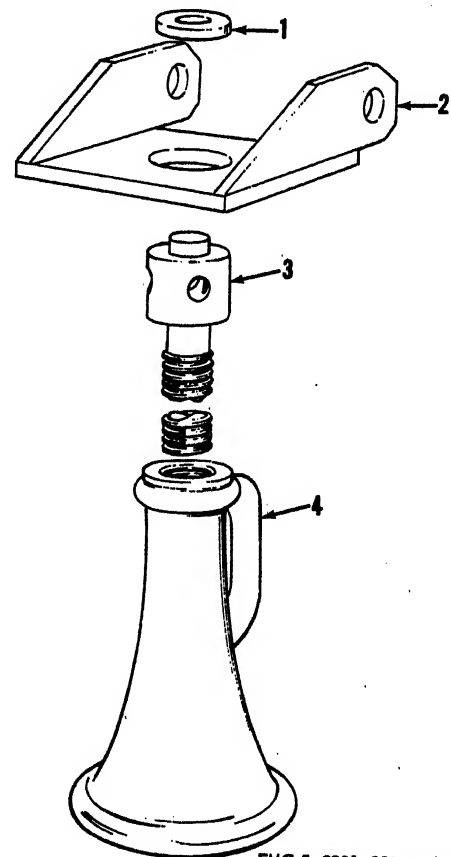
- Clean all parts with an approved cleaning solvent and dry thoroughly.
- Inspect all parts for wear or damage. Replace or repair a worn or defective part.

61. Reassembly

Reassembly the leveling jacks in the reverse order of the numerical sequence shown in figure 32.

62. Installation

Install the leveling jacks (TM 5-3820-210-20/1).



EMC 5-3820-210-35/1/32

- | | |
|-----------|---------------|
| 1 Washer | 3 Screw, jack |
| 2 Bracket | 4 Base, jack |

Figure 32. Leveling jacks, exploded view.

Section XI. TOOL BOX AND DATA PLATES

63. Description

The tool box mounted on the right hand side at the rear of the main frame provides storage for tools and accessory items necessary for the operation and maintenance of the washing and screening unit. The data plates mounted on the washing and screening unit list instructions to aid in the operation, service, and maintenance of the equipment, and the identification for the components.

64. Tool Box

a. Removal. Remove the tool box (TM 5-3820-210-20/1).

b. Cleaning, Inspection, and Repair.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect the tool box for bends, cracks, breaks, and other damage.
- (3) Repair cracks and breaks in the tool box by welding.

65. Data Plates

Remove and install data plates by removing and installing the attaching screws.

Section XII. WATER SUPPLY SYSTEM

66. Description

The water supply system provides a means of delivering water from the water source, by means of a pump and piping, to the washing and screening unit. Mounted on the washing and screening unit are the water supply main header and control valve connecting to the water piping of the major components. Suction hose, pontoon, foot valve, 30 feet lengths of pipe, and various couplings and hardware to connect these components and pump to the washing and screening unit complete the system.

67. Gate Valves

a. Removal. The gate valves are removed in the removal of water piping assemblies (TM 5-3820-210-20/1).

b. Disassembly. Disassemble the gate valve in numerical sequence shown in figure 33.

c. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect body, bonnet, and wheel for cracks, breaks, or other damage. Replace defective or damaged parts.
- (3) Inspect packing nut, stem, and body for damaged threads. Repair or replace defective parts. Replace packing if necessary.

d. Reassembly. Reassemble the gate valve in the reverse order of the numerical sequence shown in figure 33.

68. Main Header and Wedge Gate Control Valve

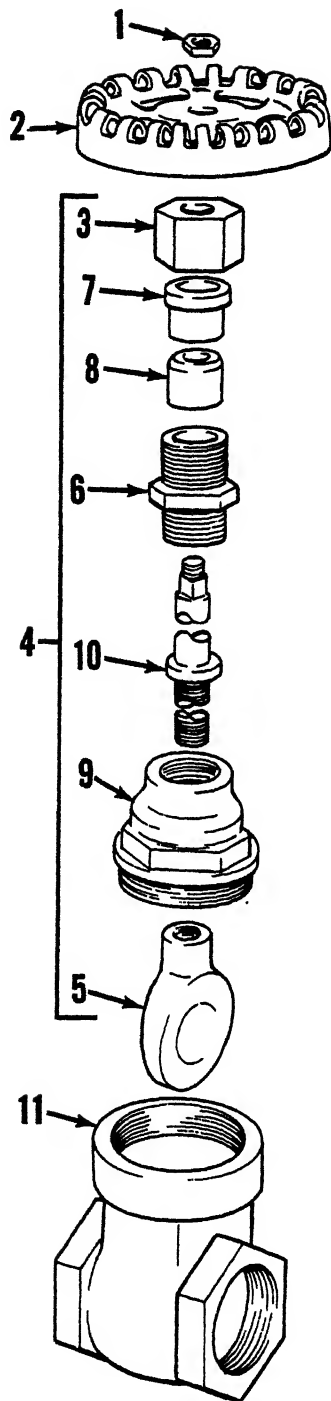
a. Removal. Remove the main header and control valve as shown in figure 34.

b. Disassembly.

- (1) Disassemble the main header piping by unscrewing the piping or fitting to be removed.
- (2) Disassemble the wedge gate control valve in numerical sequence as shown in figure 35.

c. Cleaning and Inspection.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect all pipe and fittings for cracks, breaks and general condition of threads. Repair or replace a damaged or defective part.
- (3) Inspect valve bonnet, body, and wheel for cracks, breaks or other damage. Repair or replace damaged or defective parts.
- (4) Inspect packing nut, stem, and disc for damaged threads. Inspect disc, disc seat ring, and body seat ring for



EMC 5-3820-210-35/1/33

- 1 Nut, wheel
- 2 Wheel
- 3 Nut, packing
- 4 Bonnet and stem assembly
- 5 Disc
- 6 Box, stuffing
- 7 Gland
- 8 Packing
- 9 Bonnet
- 10 Stem
- 11 Body

Figure 33—Continued.

tight seal. Repair or replace damaged or defective parts. Replace packing if necessary.

d. Reassembly.

- (1) Reassemble the wedge gage control valve in reverse order of numerical sequence shown in figure 35.
- (2) Reassemble main header piping by screwing the piping or fitting together in order as shown in figure 34.

69. Foot Valve

a. Removal. Remove the foot valve by unscrewing it from the piping to which it is attached.

b. Disassembly. Disassemble the foot valve in numerical sequence as shown in figure 36.

c. Cleaning, Inspection, and Repair.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.
- (2) Inspect body and strainer for cracks, breaks or other damage. Repair or replace a damaged or defective part.
- (3) Inspect leather disc face for cracks or defects that would prevent it from making a tight seal. Replace a defective disc face.

d. Reassembly. Reassemble the foot valve in the reverse order of the numerical sequence shown in figure 36.

70. Pontoon Assembly

a. Disassembly. Disassemble the pontoon in numerical sequence as shown in figure 37.

b. Cleaning, Inspection, and Repair.

- (1) Clean all parts in an approved cleaning solvent and dry thoroughly.

Figure 33. Gate valve, exploded view.

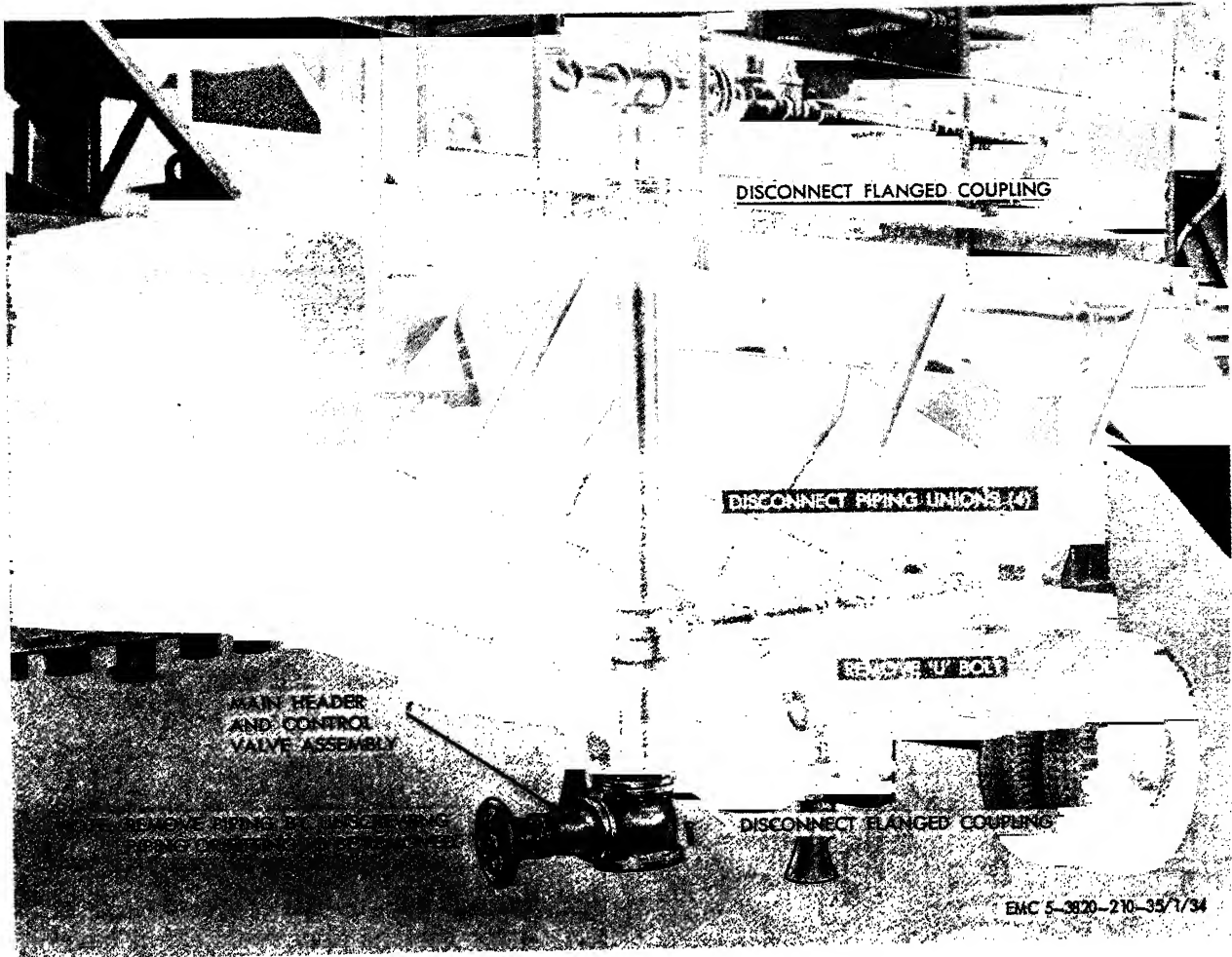


Figure 34. Main header and control valve, removal and installation.

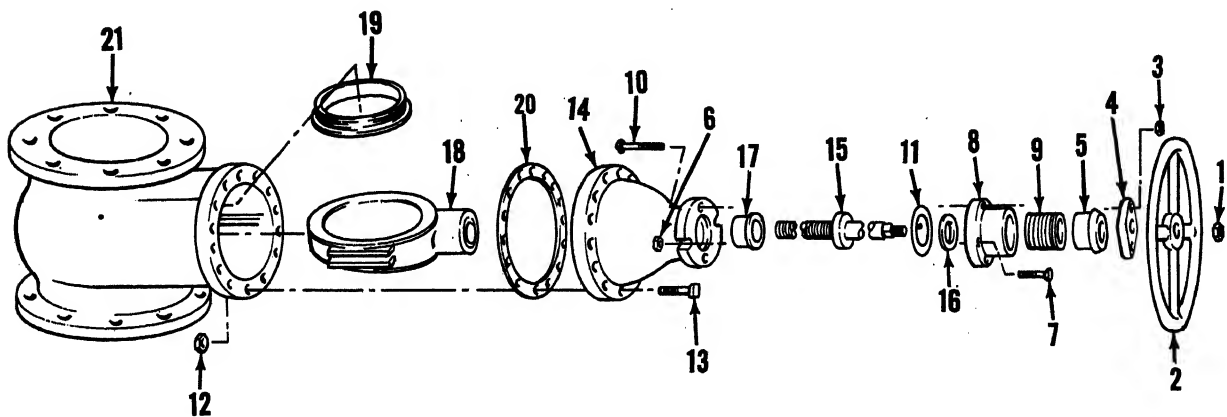


Figure 35. Wedge gate control valve, exploded view.

- | | | |
|-----------------|--------------------------------|---------------------------------------|
| 1 Nut for wheel | 3 Nuts for gland bolts (2 rqr) | 5 Gland |
| 2 Wheel | 4 Gland flange | 6 Nuts for stuffing box bolts (2 rqr) |

Figure 35—Continued.

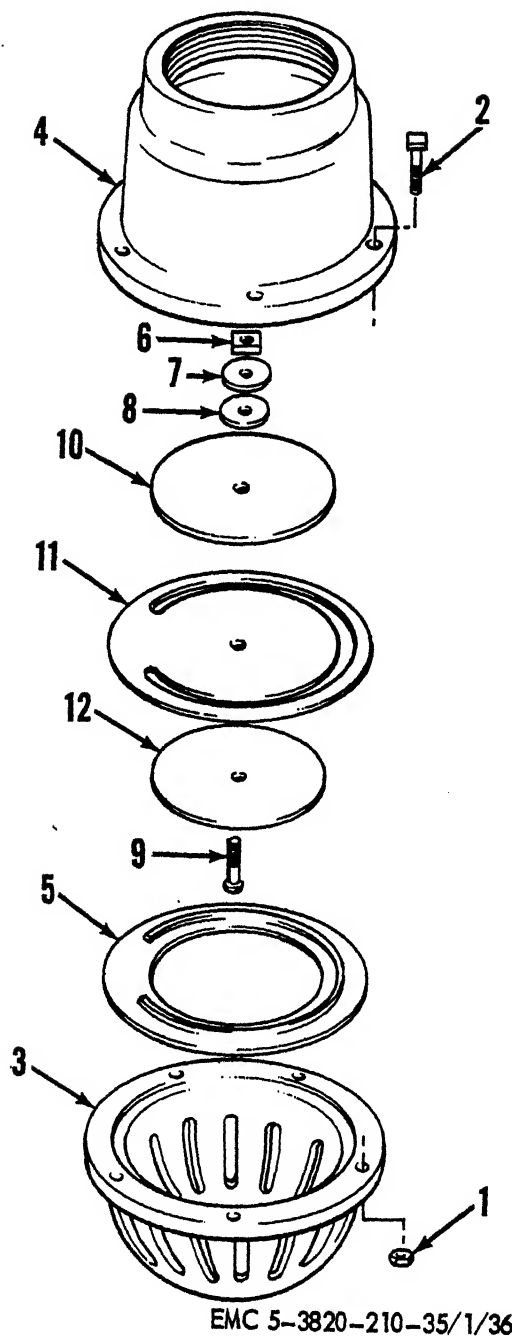


Figure 36. Foot valve, exploded view.

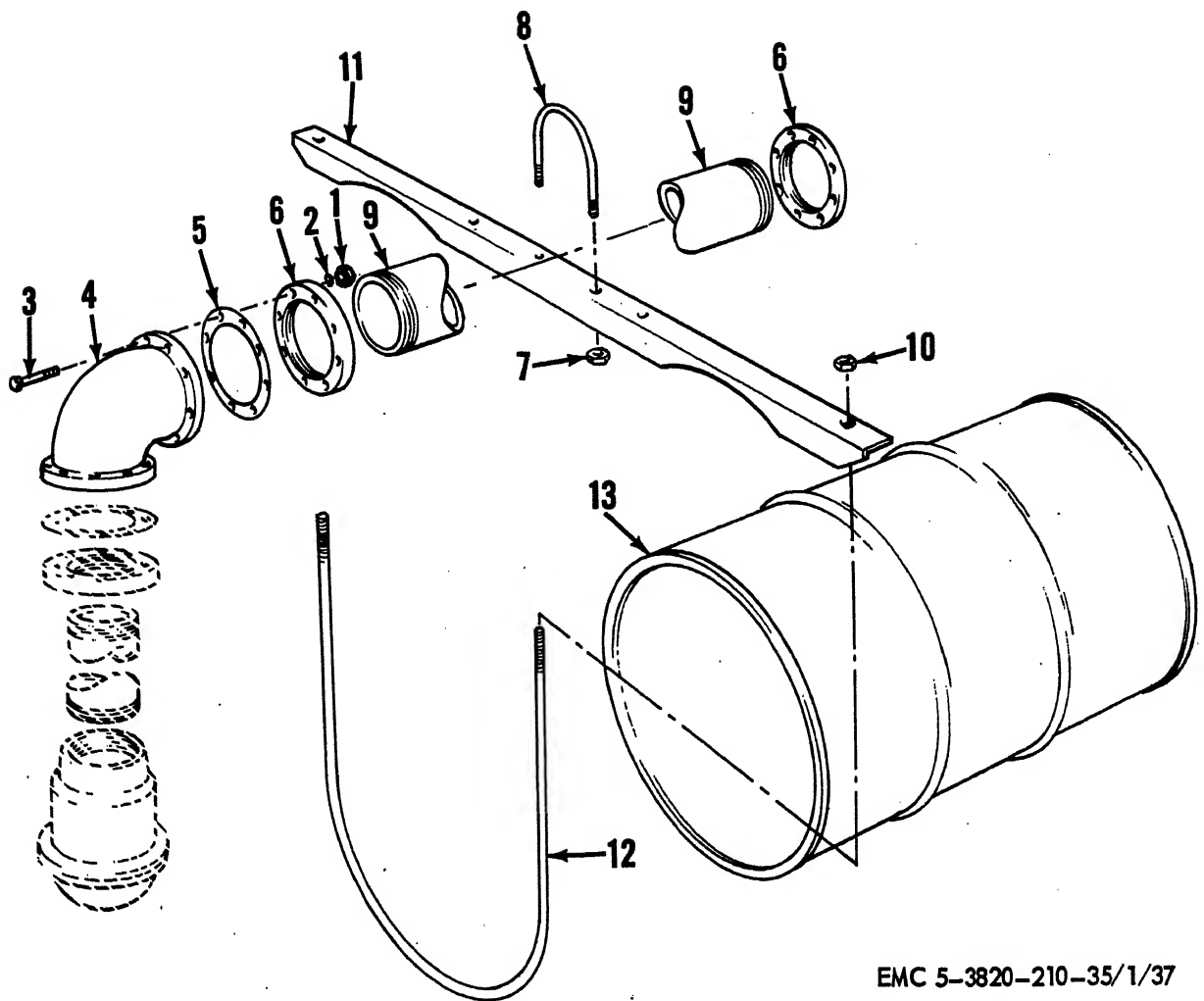
- 7 Gland bolts (2 rqr)
- 8 Stuffing box
- 9 Packing
- 10 Stuffing box bolts (2 rqr)
- 11 Stuffing box gasket
- 12 Nuts for bonnet bolts (14 rqr)
- 13 Bonnet bolts (14 rqr)
- 14 Bonnet
- 15 Stem
- 16 Stuffing box bushing
- 17 Bonnet bushing
- 18 Disc with bushing
- 19 Body seat ring
- 20 Bonnet gasket
- 21 Body

Figure 35—Continued.

- 1 Nuts for strainer bolts (5 rqr)
- 2 Strainer bolts (5 rqr)
- 3 Strainer
- 4 Body
- 5 Seat
- 6 Nuts for disc bolts
- 7 Disc bolt washer
- 8 Disc bolt washer gasket
- 9 Disc bolts
- 10 Disc
- 11 Disc face
- 12 Washer

Figure 36—Continued.

- (2) Inspect barrels for cracks, breaks or other damage that would affect bouyancy. Repair or replace a defective barrel.
 - (3) Inspect all mounting hardware and repair or replace any damaged or defective parts.
 - (4) Inspect pipe and elbow for cracks, breaks or other damage. Repair or replace a defective or damaged part.
- c. *Reassembly.* Reassembly pontoon assembly in the reverse order of numerical sequence shown in figure 37.



EMC 5-3820-210-35/1/37

- | | |
|--|--------------------------------|
| 1 Nut, hex, 5/8 in. (8 rqr) | 8 U-bolt (4 rqr) |
| 2 Washer, lock, 5/8 in. (8 rqr) | 9 Nipple, pipe, 6 in. x 10 ft. |
| 3 Screw, hex-hd cap, 5/8 x 2-1/2 in. (8 rqr) | 10 Nut, hex, 1/2 in. (32 rqr) |
| 4 Elbow, 6 in. pipe flanged | 11 Support (4 rqr) |
| 5 Gasket, flanged | 12 U-bolt (8 rqr) |
| 6 Flange, pipe 6 in. (2 rqr) | 13 Barrel, steel (4 rqr) |
| 7 Nut, hex, 1/2 in. (16 rqr) | |

Figure 37. Pontoon assembly, exploded view.

APPENDIX I

REFERENCES

1. Dictionaries of Terms and Abbreviations

AR 320-5 Dictionary of United States Army Terms.
 AR 320-50 Authorized Abbreviations and Brevity Codes.

2. Fire Protection

TM 5-687 Repairs and Utilities; Fire Protection Equipment and Appliances; Inspections, Operations, and Preventive Maintenance.

3. Lubrication

LO 5-3820-210-20/1 Washing and Screening Unit Aggregate; Electric Driven, Wheel Mounted with Dolly, with 4 Dual Tires, 75 T.P.H. Capacity (Barber-Greene Model 48 SSC-G)

4. Operators Manual

TM 5-3820-210-10/1 OPERATORS MANUAL

5. Organizational Maintenance

TM 5-3820-210-35/1 Organizational Maintenance

6. Field and/or Depot Maintenance

TM 5-3820-210-35/1 Field and Depot Maintenance

7. Supply Publications

TM 5-3820-210- Organizational Repair Parts
 20P/1
 TM 5-3820-210- Field and Depot Repair Parts
 35P/1

8. Auxiliary Equipment

TM 5-3910-203-15 Conveyor, Belt Operation; Service and Maintenance

9. Painting and Preservation

TB ENG 60 Preservation and Painting of Serviceable Corps of Engineers Equipment.
 TM 38-230 Preservation, Packaging, and Packing of Military Supplies and Equipment.

10. Preventive Maintenance

AR 750-5 Maintenance Responsibilities and Shop Operation.
 TM 5-505 Maintenance of Engineer Equipment.

TM 5-3820-210-35/1

TM 5-764 Electric Motor and Generator Repair.
TM 9-1870-1 Care and Maintenance of Pneumatic Tires.

11. Shipment and Limited Storage

AR 743-505 Limited Storage of Engineer Mechanical Equipment.
TM 9-200 General packaging instructions for Ordnance general supplies.
TM 38-230 Preservation, Packaging and Packing of Military Supplies and Equipment.

12. Publication Indexes

DA Pam 108-1 Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA Pam 310-1 Index of Administrative Publications.
DA Pam 310-2 Index of Blank Forms.
DA Pam 310-3 Index of Training Publications.
DA Pam 310-4 Index of Technical Manuals, Technical Regulations, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
DA Pam 310-5 Index of Graphic Training Aids and Devices.
DA Pam 310-25 Index of Supply Manuals—Corps of Engineers.

13. Training Aids

FM 5-25 Explosives and Demolition.
FM 21-5 Military Training.
FM 21-6 Techniques of Military Instruction.
FM 21-30 Military Symbols.

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BY ORDER OF THE SECRETARY OF THE ARMY:

G. H. DECKER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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NG: None.

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For explanation of abbreviations used, see AR 320-50.

